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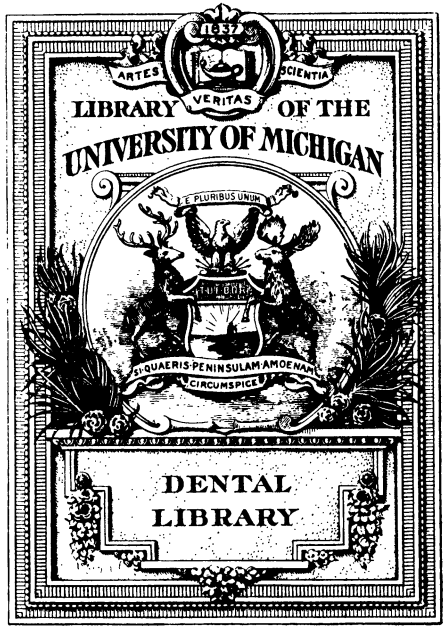
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AMERICAN DENTAL JOURNAL

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OUR POST GRADUATE COURSE

OPERATIVE DENTISTRY.

BY R. B. TULLER, D. D. S.

EROSION OF THE TEETH.

What do you know about erosion? You know that you come in contact with it, and note as you see it from time to time, that it is as progressive and destructive to the tooth structure as caries, though of an entirely different nature. The smooth polished hard surface of the facets it produces in the enamel, give no suggestion of decay of any sort; and yet there is a more or less rapid wasting of tooth tissue.

There is considerable diversity of opinion among those who have attempted a study of the etiology of the disease, if it can be classed as a disease. If teeth are corroded by the action of strong acid coming in contact with their surfaces, such as may occur from some medicinal iron preparations, we do not call it disease; though it may prepare the surface for the invasion of caries later on.

Some observers and investigators seem to think that erosion is due to a faulty formation of the tooth or teeth, and while this view lacks satisfactory substantiation, it is notable that many times teeth are attacked by it along the same sort of lines that we find in deficient enamel, which we know is caused by some interference with nutrition in the formative period of the tooth; and that has probably suggested to some that erosion comes from a somewhat similar fault—faulty, but not suspended nutrition. There is such a variety of ways and places where erosion is demonstrated, when one has the opportunity of inspecting a large number of patients, that this occasional coincidence in appearance with deficient enamel has no value in substantiation of the theory of a similar predisposing cause. In some cases they seem to have been mechanically cut, as with a bur.

Some writers have held that the friction of toothbrushes, especially when carrying some abrasive powder, is often the cause. There is very much doubt of this, because erosion occurs where teeth are not brushed. If the teeth had some faulty development producing areas of softness susceptible to the wear of brush or abrasives there might be

a little foundation for this view; but when it is considered that the erosion of some teeth occur in such places and in such a manner that it could not have been influenced by brush action. And when we know of tests that have been made on a variety of teeth that have been extracted, submitting them to continuous and rapid brushing for days and days, by use of the electric lathe in various ways, and ten thousand times more vigorously than ever could occur in the mouth with any toothbrush, and with scarcely any abrasion as a result, we may well hesitate to blame the toothbrush.

Some observers believe erosion to be a process of absorption which occurs in a way similar to the absorption of the roots of deciduous teeth; or as sometimes occurs with roots of permanent teeth, and particularly in cases of transplanting or replanting. The absorbing tissue, if the absorption process holds, is supposed to be a diseased character of mucous membrane lying in contact with the surfaces that become eroded. This seems to be in conflict with the fact that erosion occurs occasionally on surfaces of teeth not touched by any such mucous membrane. This fact would seem to deny also the claims of others that the mucous membrane develops an acid that is destructive to the tooth tissue.

Now, when an acid attacks tooth enamel, so far as we know, the surfaces attacked are variously irregular and result in a corroded, not a polished surface. While we find erosion occasionally taking on peculiar shapes and cutting most odd figures, we find also, very frequently, several teeth presenting the same pattern of wasting area, and always leaving a hard polished surface, contrary to acid action usually. A frequent exhibit of erosions found by dentists takes on the form of angular grooves straight across several teeth and in the same line, as if they had been filed with a three-cornered file and then polished. It is hard to reconcile acid as the cause in these cases taking on such regular shapes, not to mention the polished condition.

Other observers see an *alkaline* condition of the mucous membrane in contact as the cause, but some of the same objections quoted above seem to apply as well to the alkaline theory.

The etiology of erosion is decidedly obscure as yet, and may be for some time; or until investigation and research has been diligently prosecuted at some length in laboratory experiments, aided by some sort of systematic observations and experiments made and reported

by many intelligent and thoughtful men in everyday practice. The number and variety of cases of erosion that come, as a rule, to any one practitioner with opportunity to watch and follow up to a fair sort of conclusion, are not enough to provide very satisfactory data within a reasonable time. Co-operation between a corps of active practitioners with diligent laboratory research, may in time reveal the etiology; also a satisfactory remedy or method of treatment to check it.

As to remedies up to this time, nothing positive and authentic is known, barring, perhaps, the heroic one of devitalizing, cutting off the tooth and substituting a porcelain crown.

In cases where gold fillings and porcelain inlays have been inserted (in conditions favorable to such work, such as V-shaped grooves or deep facets limited in area), some measure of success has been attained; but in many other cases the erosion is found to be again wasting the tooth outside the area of the filling. Often the area of erosion is so broad, involving almost the entire labial surfaces of the several teeth afflicted, that gold fillings are entirely out of the question; and while a porcelain expert might adapt some creditable and satisfactory inlays, undoubtedly entire porcelain crowns skillfully fitted to the good, solid healthy roots would prove a better solution of the problem. This probably as a rule, should be a last resort. Erosion, so often extremely sensitive, may be treated for that by some well applied burnishing, to be repeated when sensitivity again occurs. This burnishing is as a matter of course, painful at first on such sensitive surface; but it usually subsides to a great extent, if not altogether, after the first rubbing over it. This burnishing is also said by some to check the wasting process to some extent; but this can hardly be relied upon.

In my own personal experience I have never conducted a thorough series of medicinal treatments, with the full co-operation of the patient in keeping regular appointments at stated intervals, for that particular trouble. Incidentally I have tried a number of recommended remedies for perhaps a dozen treatments, but without systematically following up to determine what were the results; therefore have nothing of value recorded as data. I have in numerous instances filled deep V-shaped channels both with gold foil and gold and porcelain inlays, with results, so far as observed, more or less successful. In some in-

stances a recurrence of the trouble appeared along the border of the filling.

Later I have used Ascher's enamel with, apparently, good results, though these have hardly had the test of time. I recall several instances where, when the dentine was exposed in some V-shaped cavities, decay had set in, and in one instance the pulp was exposed.

In filling such places it is a matter of course that all the affected area must be either excavated or entirely covered in by the filling material. In affected places, like deep V-shaped grooves, only such excavation as to properly secure the filling is necessary, and that anchorage depends, too, upon the material used. A good defined margin clearly outside the line defining the affected area, is no doubt a wise provision in most cases; and if the case has been watched enough to notice if the channels or areas are widening as well as lengthening, it would likely be wise to carry the margins to pretty surely safe territory, especially if porcelain or enamel is used. With gold we try to limit as much as possible the size of the filling for esthetic reasons.

Unquestionably the preservation of the natural crowns should be the aim as long as sightliness and comfort can be reasonably maintained. In some cases involving the labial surface of conspicuous anterior teeth, objectional disfiguration may often be modified for a time by disking down to a smoother surface, with the distinct understanding with the patient, that such procedure is not intended at all as a remedy for the disease, and that ultimately, probably, the natural crown will have to be replaced with a porcelain one.

There has been suggested to me one remedy serving to check the wasting of the tooth tissue, that seems to me good if quite frequently repeated. The teeth are to be thoroughly protected from flow of saliva, and after drying with cotton, must be more thoroughly dehydrated by wiping with absolute alcohol or chloroform. Follow this with equal parts of carbolic acid and glycerine. This application is sometimes quite painful at first. Allow this to remain a few moments and then remove by using chloroform. Follow this by burnishing with a warm burnisher and parafine. The burnisher should be hot enough only to melt the parafine. In the end remove surplus parafine, and blow warm air on to liquify and flow the little that remains. Instruct patient to brush teeth only with tepid water—no powder—and not too vigorously during this treatment.

(To be continued.)

BACTERIOLOGY AND PATHOLOGY.

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In the discussion of milk as a product, we might say a natural product, that come from a specialized glandular structure we have shown some of its chemical properties. As for its physical characteristics as a material for food, there has never been any substitute for this product. When we say substitute we mean an agent that will fulfill all the requirements of the milk; and although its chemical and physical properties have been determined by a large number of investigators, yet a substitute cannot be produced.

We have seen that milk contains the important constituents of a food, namely proteids, carbohydrates and fats. The question might be asked: what is a proteid? The best answer to this question might be given by stating that it belongs to a group of non-crystallizable nitrogenized compound that is widely distributed throughout the body and forms the greater part of the mass of protoplasmia that makes up the animal and vegetable kingdom. There are a number of the so-called proteids that have a particular characteristic, in that they contain carbon, hydrogen, nitrogen, oxygen, sulphur, and sometimes phosphorus. The various groups of this compound all contain these elements, and, apparently, the difference between one proteid and another is that there is a difference in the chemical combination. They are all coaguable by heat and the mineral acids, and they are insoluble in ether and alcohol. Sterio-chemistry teaches that they are lavorotary and that their physical properties may be changed without changing their chemical elements. There are a number of names given them, designated as native albumin, serum albumin, egg albumin, lactalbumin, acid albumin, casein, globulin, paraglobulin, fibrogen, myosin, myoglobulin, vitellin, fibrin, pepton, albumosis and lardacein. We have these named compounds appearing as a native substance in most all, or we might say in all living organic compounds. As will be seen, these all play a great part in the physical properties of life. Some one, or perhaps all of these compounds, acts as a food product for practically every living organism. In the vegetable kingdom they are dormant, or we might say inactive, like in the grains and seeds of plants, until they are placed

in suitable environments, when they take on an active developmental process. And as the plant increases in its development the proteids develop simultaneously with all other compounds.

This group of proteins can enter into a chemical combination with a large number of elements, so large a number that they are past enumerating. In mentioning this sulphur, in combination with these substances, we might state that phosphorus is an element that enters into combination with all of the other substances in the molecular compound of proteid. If proteids are placed in large quantities of water there takes place what is known as hydrolytic cleavage, yielding nitrogenous basic substances, frequently setting free a large amount of monamino acids, a group of acids that differ somewhat, in many particulars, from each other. The element nitrogen occurs in proteid bodies in various forms and under somewhat varied conditions. On boiling proteids with mineral acids there is formed a so-called amido nitrogen which is readily split off as ammonia, leaving guanidine, which will combine with a large number of elements forming acids and bases, orginin or some other metallic-like substance that is classed as the urea group. There are about five substances in the group of so-called urea compounds, and their quantitative division of the total nitrogen between these five groups forms the differences in the chemical constituents, or, perhaps we might say, the physical properties of these various urea compounds.

This so-called amido nitrogen seems to be entirely absent in protamins. In the gelatin-like substance of the animal body amido nitrogen exists from one to two per cent, while in the other animal tissue it exists there from five to ten per cent. In plant glutin proteids the amido nitrogen exists there from thirteen to twenty per cent. In the animal body the guanidine nitrogen exists from twenty-two to forty-four per cent. In the animal body there is a group of substances that is called histin, which is a group of albuminous substance situated in the nucleus of the cell and has a close combination in chemical formation with phosphorus. This compound exists there usually in quantities from twelve to thirteen per cent, and can be precipitated by phosphotungstic acid. The percentage of nitrogen that occurs in all of these groups of proteids ranges anywhere from fifty-five to seventy-six. The various groups of proteid containing different quantities of nitrogen show that the element nitrogen is a variable quantity and plays a very important role in the combination

for making up the various groups. In pretty nearly all of these groups nitrogen is given off from one to two per cent, showing that there is a certain percentage of this nitrogen that is unstaple.

The sulphur that appears in proteid bodies is also variable in quantity in the molecule. It exists in the proteid compound like the protamins. It also, in bacterial proteids, under some circumstances, seems to exist almost free or loosely combined, while gelatin and elastin are very poor in sulphur. Many other substances of a proteid nature contain large quantities of sulphur; for instance, the horns and hoofs of animals contain a proteid that is rich in sulphur, and the shafts of the hair, or the hair follicles, contain a large quantity of sulphur. Sulphur is combined in the cementum and dentin of the tooth. In the vegetable kingdom the sulphur in the proteids is not so extremely plentiful, with the exceptions of a few of the apparently low forms of vegetable life. Some of the fungi and the cystin as it exists in shells, like shells of oysters and snails, is rich in sulphur of a proteid combination. It is also easy to substitute this sulphur with other elements.

In breaking up proteids rich in sulphur there is frequently found a thio-lactic acid. This is not an uncommon form of ethyl sulphide, which has a characteristic odor that is so common in the grinding of a tooth, or in the burning of hoofs or horns of animals, and is so universally observed in many of the compounds that we have previously mentioned. The element sulphur in proteid is easily separated by solutions of potassium and soda, forming sulphides, and can be detected by lead acetate. After sodium and potassium sulphides have been formed in solution and precipitated by lead acetate, there is a small quantity of the sulphur that still remains and can be detected further by sodium carbonate and then testing for sulphates. In this way we will have the sulphides appearing in certain waste products of the body. If their quantity is increased above normal we look upon it as a bad omen, or we consider that some of the physiological processes of the body have been interfered with.

It seems that in the chemical manipulation of certain proteids rich in sulphur the sulphur element is almost inexhaustible. In the cystein of shells and scales, hoofs and horns of animals, we find that the constant decomposition of this substance brings forth more sulphur.

When proteids are fused with caustic alkalies, amonia, methyl

mercaptan, and other volatile products, leucin, volatile fatty acids, acetin acid, valerianic acid and butyric acid are formed; then followed by a further splitting up tyrosin, and if tyrosin is further split up we have phenol, indol and skatol, which seems to be an end product of hydrolytic cleavage. A number of investigators have attempted to isolate and systematize this group of cleavage products that are almost innumerable. Among the earlier workers in this field were Hlasiwetz, Habermann and Rittenhausen, and a more recent investigation has been carried on by Fischer. The last-named author and his assistants obtained monamino acids, which have been classed as glycoll, alanin and acids that form certain combinations to form leucin, serin and tyrosin, with some propionic acid compounds, and from these have been separated aspartic and glutanic acids. The compounds rich in sulphur, like in the horns and hoofs of animals, form a sulphide of cystein, and these when broken up give lycin and histidin; then follows the further breaking up of pyrrolidin, which may exist as oxypyrrolidin. This in turn gives up a sulphuretted hydrogen and other compounds that are of no special interest at this time.

A large number of proteid bodies can be acted upon by certain proteolytic enzymes. When these proteids are acted upon by the enzymes just mentioned there are proteoses and peptones formed. When these compounds are broken up in this way there are a number of basic products formed that in some particular differ materially from some of the above intermediate products; though we have formed some ammonia with skatol that appears in its general characteristics like those above mentioned.

Certain forms of bacteria will and do act very much like the proteolytic enzymes, and a great many of these same products will be formed by the action of bacteria in the process of decomposing tissue substance rich in proteids. In the decomposition of tissue by bacteria that acts very much in the same way as the enzymes just mentioned, we naturally have formed aliphatic and aromatic acids, or, in other words, fatty acid derivatives. These in combination with the ammonium form caproic, valerian, butyric and succinic acids, and from these may be formed the ptomaines that appear in the decomposition of tissue elements. The ptomaines, as will be seen, have a proteid combination with certain of the fatty acids.

In the decomposition of the pulp tissue in the earlier stages of

this process, we have a number of the volatile fatty acids formed, and they combine with the decomposition products of the proteids, making a long and interesting group of products that in some respects may be synthetic. The proteid decomposition by bacteria and the fatty decomposition by bacterial processes may form compounds of their respective groups, and these two groups of compounds may, and do, combine to form some of the ptomains. In the putrefactive process of the aromatics and the hetero-cyclics forms a separate group of compounds. A further decomposition of the phenols and tyrosins bring about the aromatic acids. The oxyacids can further be decomposed into the phenols and cresols. Phenyl-lactic acid, phenol and propionic acids also belong to this group and are easily decomposed. All of the above named products are many times the result of bacterial decomposition of lifeless or animal tissue.

In the decomposition of pulp tissue we found a large group of these compounds in various stages of the decomposition process. In the digestion carried on for physiological purposes of material rich in proteids and fatty acids, no one has yet determined whether or not all of these compounds are present. It is fair to presume, however, that the enzymatic action of certain compounds, that we call the digestive fluids, may break up these proteids and fats in a decidedly different manner. The breaking up of proteids for the building up of body substance or cellular elements is carried on for the purpose of forming compounds that can be synthesized into a still higher complexed process; while the decomposition of proteids like the process carried on by bacteria, we have there the breaking up of proteids in order that the bacteria may utilize a portion of this decomposed material for the building up of proteids in their own bodies. Many of these chemical compounds cannot be utilized by bacteria, for the simple reason that the interchanging of products of the cells is very different to that in the multicellular forms of life. Therefore these compounds must be held in different chemical relations to the cell or cells than in the unicellular forms of life.

In order that we can better understand the physiological function of the body, and the physiological activity of bacterial cells, it is important that we make a close analysis of what really takes place in the interchanging of proteids or in the breaking up of proteids for the physiological purposes of the bacterial cell, and the multicellular forms of food utilization by the body of the higher forms of life.

(*To be continued.*)

Our Foreign Department

THOMAS L. LARSENEUR, D. D. S., Foreign Department Editor

ATROPHY OF THE ALVEOLAR PROCESS.*

BY DR. MICHEL WURZBURG.

Translation Requested by Dr. L. P. Haskell.

(*Le Laboratoire et le Progres Dentaire reunis,* Paris, Dec. 6, 1908.)

(Continued from March.)

Regarding the measurements of which I have spoken previously, we will first examine Table I.

Measurement 1A—Spina naz. inf.—Ridge of the inf. max.

Measurement 2A—Limb. alveol. sup.—Limb. inf. alveol.

Measurement 3A—Limb. sup. alveol.—Apical facies.

Measurement 4A—Limb. inf. alveol.—Apical facies.

Measurement 5A—Height of the maxillary. Alveolar process.

a—bitemporal. *b*—biparietal. *c*—circumference.

d—spina naz. sup. ment.—for magn.

For cases of atrophy the measurements are the same as No. B. In 2B the region of the incisors is lacking, as the occlusion of symphysis is taken as unity. Naturally, 2B and 4B are missing. i, incisor region; c, supid region; b, bicuspid region; m, molar region.

1A—Normal; will indicate the superior and inferior maxillaries *in situ,* with complete dentition.

2B—Atrophied; will indicate the superior and inferior maxillaries atrophied *in situ.*

Six normal skulls and five atrophied have been measured. This is the result of the table given above: The approximate distance between the inferior ala nasi to the ridge of the inferior maxillary is of 75.5 mm. in a normal case (see 1A) and of 53.4 mm. with an

*Paper read at the annual meeting of the Dental Society of Francfurt sur Mein (May, 1908).

TABLE I. Superior and Inferior Maxillary in Situ.

A.—NORMAL.

	1A	2A				3A				4A				5A				6A			
		i	c	b	m	i	c	b	m	i	c	b	m	i	c	b	m	a	b	c	d
1	76	26	23	18	18	13	14	11	10	9	10	11	6	30	29	28	25	124	152	48	34
2	85	22	28	19	11	14	17	13	11	9	19	14	9	40	34	38	32	144	147	52	37
3	68	22	20	18	19	12	13	11	9	9	9	9	7	29	28	28	24	115	117	53	37
4	71	23	23	17	13	13	13	11	9	10	11	12	10	33	31	31	25	122	133	53	37
5	80	22	24	19	14	12	14	12	10	16	12	9	7	36	32	34	30	...	...	...	...
6	77	19	22	19	16	15	15	13	11	11	11	12	9	32	32	30	29	...	...	...	...
	74.5	22.3	23.3	18.3	15.1	13.7	14.3	12	10	10.6	12	11.2	8	29.7	31	31.5	27.5	127.5	144.8	56.5	36.2

B.—ATROPHIED.

	1B	2B				5B				6B			
		i	c	b	m	i	c	b	m	a	b	c	d
1	32	..	4	9	9	16	16	14	12	110	135	49	34
2	44	..	7	8	10	23	20	17	14	120	134	51	37
3	36	..	8	9	9	22	20	19	17	109	137	53	37
4	25	..	..	..	..	16	15	14	14	113	134	48	36
5	30	..	..	..	..	..	..	..	..	...	...	..	..
	33.	..	6.	8.	9.	19.	17.	16.	14.	113	135	50.	36

In order to facilitate the researches of thes measurements, the number of the first column corresponds to the number under the cuts.

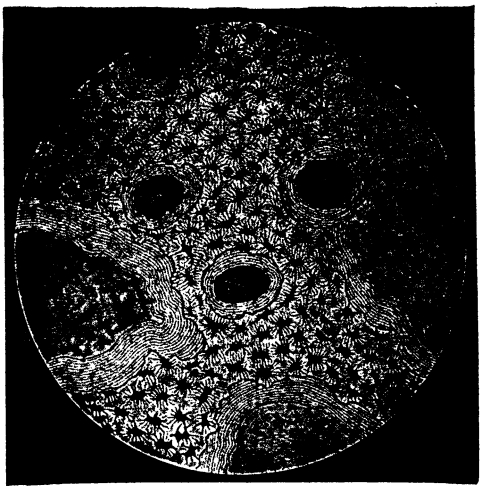


Fig. 1.

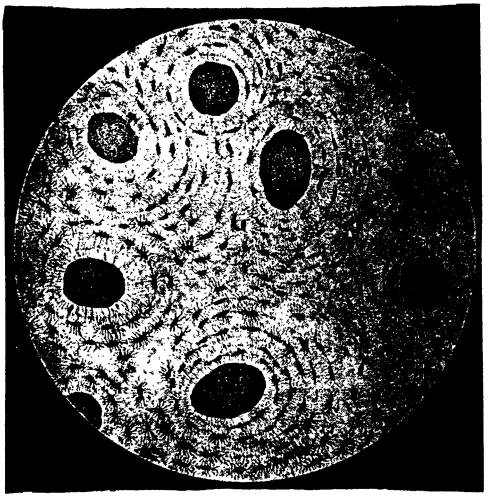


Fig. 2.

atrophied case (see 1B). Therefore there is a difference of an average of 21.1 (2A 2B). The height of the teeh between the superior alveolar ridge and the inferior alveolar ridge is:

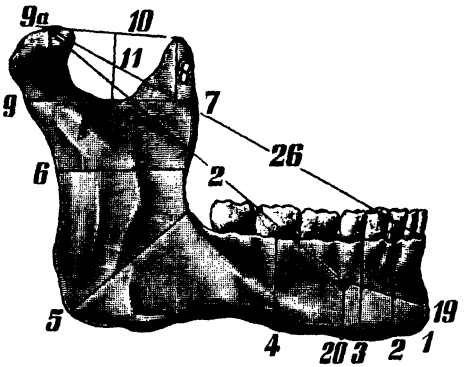


Fig. 3.

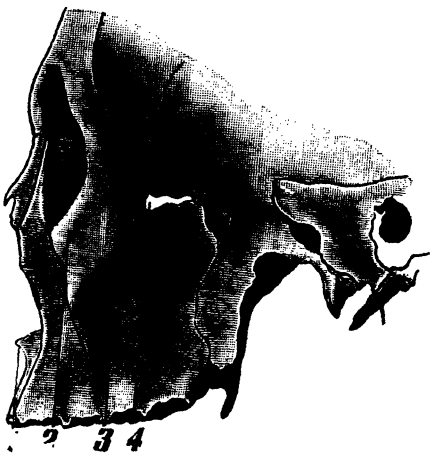


Fig. 4.

	Normal.	Difference in average.	Atrophied.
In the incisor region	22	....	....
In the canine region	23.3	17.3	6
In the bicuspid region	18.3	9.6	8.7
In the molar region	15.1	5.8	9.3

In order to demonstrate to you the absorption of the normal maxillary and alveolar process which has been caused by atrophy I have taken the height, as I have done before, of the root of the alveo-

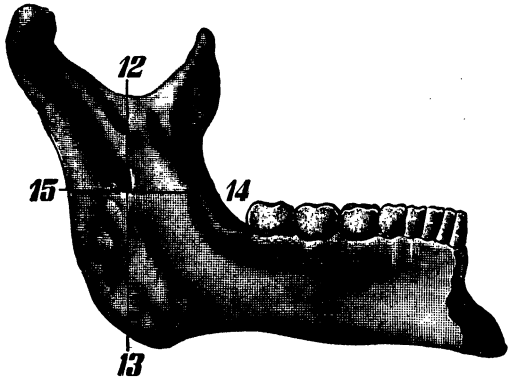


Fig. 5.

lar ridge to the root of the four regions i, c, b, m (see Nos. 3A and 4A in Table 1). Now, if we take the average measurements we will obtain the following figures:

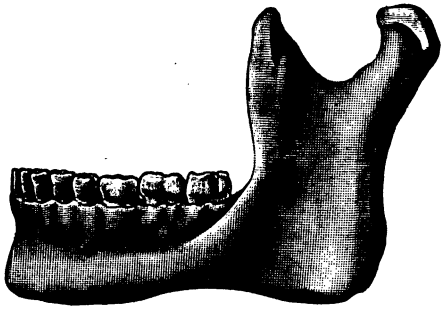


Fig. 6.

i	13	Superior maxillary.	10	Inferior maxillary.
c	14	Superior maxillary.	12	Inferior maxillary.
b	12	Superior maxillary.	11.2	Inferior maxillary.
m	10	Superior maxillary.	8	Inferior maxillary.

Now, to demonstrate to you to what extent the skull had become atrophied in cases of atrophy of the maxillary, I have taken measurements of the bitemporal and biparietal diameter, from the circum-

ference to the height of the dental ridge and the sagittal measurement ontero-superior of the ala nasi to the anterior border of the foramen magnum.

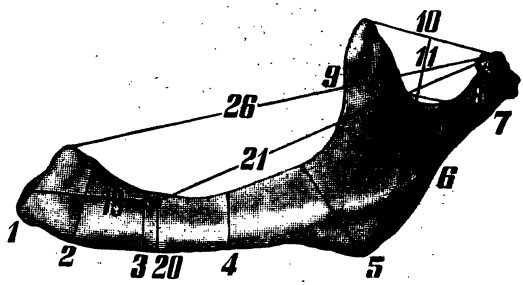


Fig. 7.

According to this table the difference between a normal and an atrophied case is: 14 mm. for the bitemporal measurement, and 9.8 mm. for the measurement of the biparietal, with a circumference of

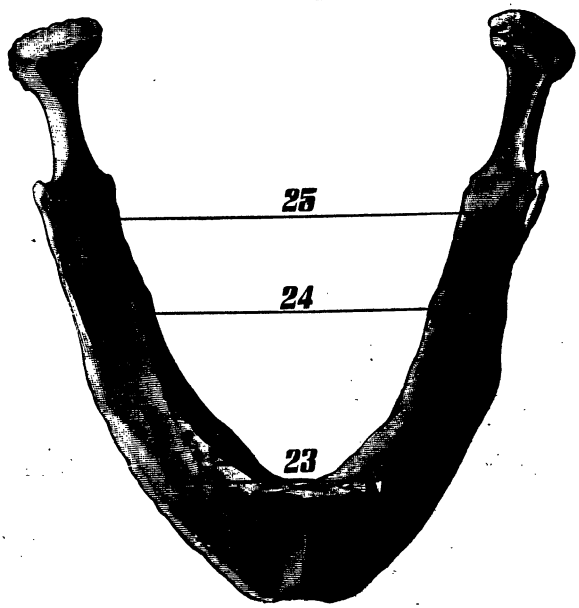


Fig. 8.

1.3 mm. and a sagittal measurement of 0.2 mm. This enables us to readily conceive the absorption in the size of the skull. Of the table we may draw the following conclusions: The atrophied maxillaries show a difference of 33 millimeters in height.

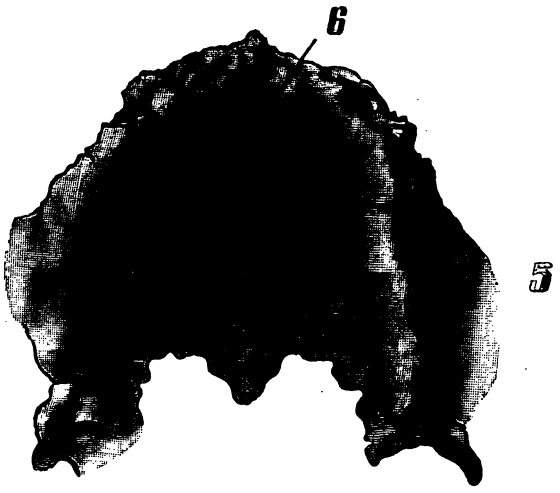


Fig. 9.

Fig. 10.

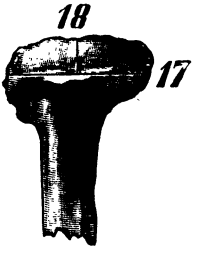


Fig. 11.

Now, let us suppose that in normal cases the maxillaries are almost parallel, we will find that, by counting a difference of 33 mil-

Fig. 12.

Fig. 13.

limeters at the point where the two maxillaries should come in contact (canine region) for a length of 100 millimeters, an angle of 33-100, or 18.4.

But the immediate result of this must be a displacement of 18.4 degrees in the articulation.

	i.	c.	b.	m.
The average height of a tooth is	22	23	18	15
Adding the absorbed alveolar process (3A 4A) sup. max.	13	14	12	10
Inf. max.	10	12	11	8
	45	49	41	33

Fig. 14.

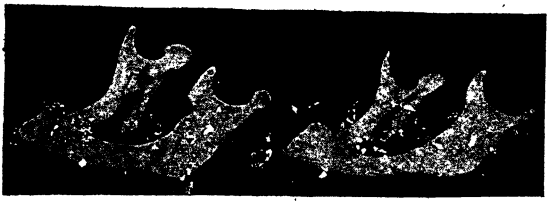


Fig. 15.

Fig. 16.

Theoretically, in a case of complete alveolar atrophy we would have the four following numbers, 45, 49, 41, 33 as distance between the two maxillaries. Reality is altogether different.

Let us once more take as an average measurement of height 74.5. From this figure let us subtract the average height of a tooth which is 18, this will give us a reduction of 56.5 from the loss of the teeth.

The body of the inferior maxillary increase of the alveolar process is:

	i.	c.	b.	m.
	29	31	31	27
Less the height of the alveolar process.....	10	12	11	8
Bal. in height of the body of the maxillary....	19	19	20	19

The heighth of the superior maxillary in the canine region (see Table I 2A).....23 mm.
Diminishing the length of the root from Table I.....12 mm.

We now have left the body of the sup. max.....11 mm.

And now we have:

	Max.	Max.
Teeth.	inf.	sup.
74.5 — 18	+ 10	+ 13

or a height of 33.5 millimeters. If we examine the Table 1B I the average of the atrophied maxillaries in the medium line, we will find the figure 33.4. In order to obtain more exact figures I have taken measurements in atrophied maxillaries where slight changes had taken place, and some of these measurements were taken in both upper and lower maxillaries and in the different regions.

(To be continued next month.)

ORIGINAL CONTRIBUTIONS

TOOTHSOME TOPICS.

BY R. B. TULLER, D. D. S.

Old Jim Pussley was a character. I might with propriety say, perhaps, that he was a characterless character in some respects. Not a really vicious character, for he had some good traits. Nature hadn't done everything for Jim to make him physically ideal, for he had an exceedingly awkward build. He had long legs with a short body and long arms, suggesting in these proportions a sort of missing-link ancestry, to say the least. Together with this, his face was ill-proportioned and his upper teeth protruded very unbecomingly, and his eyes were crossed with an upward twist to one and a downward twist to the other that was exceedingly uncanny when he was supposed to be looking directly at whomsoever he might address or have conversation with. He was very emphatic and intense in his manner, and to add to his multiple incongruities of appearance he was afflicted with stammering speech. Strangers were apt, at first, to look upon him as a hideous character in both body and mind, but he was altogether harmless, and while peculiar from force of circumstances that were ever his portion, he was far from being dull witted or entirely ignorant.

In the country town where he had ever lived he was familiar with everybody, and made a living at odd jobs and could be depended upon as quite reliable and faithful in whatsoever he engaged to do; and while dependable as to his word or statements in usual and ordinary affairs, he had a habit of telling or stammering the most wonderful and extravagant lies that ever were heard—the most improbable and impossible things that any mind could conjure up. And these he would tell with an intense seriousness that would almost make one believe that he believed them himself. No one could beat Jim in telling a big story. If anyone tried he would come back spontaneously with one that would lap over the first one, and tuck under all around.

This is why I termed Jim characterless in a way. But his were

lies, after all, that did no harm to any one. It was just extravagant romancing, and I happen to know, and you know, that Jim is not alone in that peculiarity.

I always had a feeling of excuse for Jim, because it seemed that being bereft of many diversions in life, common to many, he sought this way of amusement. There was, however, never any appearance of amusement about it on his part, and if any doubting or incredulous remark or inference was made, he hastened most earnestly, but stammeringly, to assert the truthfulness of it; and this often was the most amusing feature to others. One thing sure, when Jim got going on one of these extravagant romances, mostly original, among those who knew him he always had an interested and attentive audience.

I remember once a summer fisherman from a near-by lake came in with a wonderful tale of how he caught a 2-pound perch, and when about to land him, a 9-pound pike seized the perch, with the result that he landed both.

Jim was a listener and didn't need a hunch to start in.

"I-I-I d-don't d-doubt you a b-b-bit, s-stranger. Th-th-this is th-the d-d-dumbedest l-lake y-you ev-ever heard of f-fur th-th-at kind of f-f-fishing. W-why, sis-sis-sir, I was f-f-fishing th-there one d-day l-last sum-summer wh-with just an an-an-angle worm, and a m-m-minnie sw-sw-swallered the a-angle w-worm, and th-then a-a-a ch-chub f-fish h-he sw-sw-swallowed th-the minnie, an-and th-then a d-dace sw-swallered th-th-the ch-chub f-fish, an-and th-then a-a big eel sw-swallered th-the dace, an-an' I b-b-began t-t-to haul in an-an' je-je-jest a-as I-I wa-wa-was l-l-lifting th-th' string of 'em f-f-from th-th' wa-water, I-I-I'll b-be d-d-durned i-i-if a b-b-big m-m-mud t-t-turkle d-d-didn't gr-gr-grab th-th' e-e-eel's tail. I-I-I p-p-pulled 'em a-a-all in at onct. I-I-It was a hard and heavy l-lift, but I-I got 'em."

The listeners all waited for the stranger to do the remarking, which he did, by saying: "I'm something of a liar, myself; but this time I was telling the plain truth."

Jim looked straight at him, as well as he could, and kept nodding acquiescence, and then said: "Sh-sh-sure, sh-sh-sure. Of cuc-cuc-course y-you t-told th-th-th' tr-tr-truth; an-an-and s-s-so d-d-did I; on'y I-I-I didn't t-t-tell it all. Wh-wh-when I-I got 'em in th-th-th'

b-b-boat, I-I w-w-went t-t-to take th-th' m-m-mud t-t-turkle b-by th-th' t-tail, an-an' b-b-b' gosh, I-I f-found a sn-sn-snake h-had a h-holt of it. An' ev-ev-every one h-here k-k-knows I-I ca-can sw-sw-swear to to it be-be-before ev-ev-every ju-justice of p-peace in t-town. Ye-yes, sir."

The stranger laughed an incredulous laugh, but Jim stuck to his statement.

Then the stranger quoted this parable: Behold the fisherman! He riseth up early in the morning and disturbeth the whole household. Mighty are his preparations. He goeth forth full of hope. When the day is far spent he returneth, smelling of strong drink, and the truth is not in him.

In the town where Jim lived, or near by, are some peculiarities of nature that have attracted scientists. Some wood that had been carried into a cave years ago was found to be petrified and even the bodies of some animals that had strayed in and died there have been found petrified. It happened one time that a party of scientists interested in such things selected that town for one of their meetings and engaged the school house for one or several of their sessions for discussion of the curiosities of the vicinity. The public was admitted and Jim attended.

After an interesting discussion of the peculiarities they found in the cave, Jim arose and requested the privilege of telling something about petrifaction (or peterfaction, as he called it), that they seemed not to have heard about. The privilege was granted, and Jim said:

"I-I-I je-jest wa-want to tel-tell y-you science men that on-on th-the hill ab-above them caves th-there is a-a- pe-pe-peterfied forest."

The president was indeed astonished at the announcement, since they all knew about the caves, but had heard nothing of the forest.

"Yes," said Jim, "it i-is m-m-more marvellouser th-than the c-c-caves. Why a-a m-m-man went in there hu-hu-hunting, n-not l-long a-ago, and h-h-he w-w-was p-peterfied ri-right in hi-hi-his tr-tr-tracks."

Doubt and astonishment was expressed in a genteel way. But Jim persisted. "Well, ge-ge-gentlemen, i-it is s-so. And m-more'n th-that he-he was p-peterfied ri-right in th-the act of s-shoo-shooting a bird, a-and th-the s-s-smoke w-was p-peterfied."

Again something was said that expressed doubt, and that the speaker was mistaken.

"N-no, gen-gentlemen, th-there i-is n-no mistake, an' m-more'n that, th-the b-b-bird th-th-the m-man sh-shot was p-p-peterfied and st-staid r-right in th-the air wh-wh-where i-it wa-was sh-shot."

Then one of the scientific gentlemen interrupted and remarked that they were listening to a fairy tale, and said it was of course impossible for a bird to remain in the air. Gravitation would bring it to earth petrified or not.

Jim got his inning again at once, and answered: "I-I-I know i-it i-is a-a s-s-strange thing, gen-gentlemen, b-b-but i-it ain't s-so st-strange a-after a-all. Gr-gr-gravitation in th-them woo-woods is a-all peterfied too."

A DEFENSE OF THE INGRATES (?) WHO CAST.

The profession of dentistry has ever been ready to accept anything of merit from the fields of chemistry, medicine, surgery and mechanics and we believe has honored the men who have brought to notice any discovery of importance from any source.

Many are the discoveries of great value upon which it is impossible to place valuation in dollars and cents and recompense the men who have given up time and money for the great good of their profession, their investigations in many cases extending over their life periods.

In some of our recent magazines are articles from the pen of our esteemed Dr. Edmond Noyes, championing the cause of Dr. Taggart and his casting process and endeavoring to place upon the members of his profession the obligation to purchase a Taggart machine. If users of casting machines other than Dr. Taggart's are, in the light of Dr. Noyes' writings, thieving the privilege, then every dentist is on the same plane and under monetary obligation, the value of which it would be well nigh impossible to compute, to a great many of our greatest researchers. Who is there among us who can estimate the value to him of discoveries made by our Dr. G. V. Black? Who is there who has not derived benefits from such men as our present orthodontists and Dr. Atkinson in mechanics and has any word from any of these venerated gentlemen been forthcoming in reference to commercial obligations on the part of the profession?

Dr. Taggart has brought to prominence a discovery of great

value, but whether he is the only member of the profession who developed the knowledge of casting remains to be seen.

A number of dentists have been casting under pressure crown cusps and bridges in plaster molds after burning out and otherwise getting rid of wax long before anything was heard of Dr. Taggart's methods. It is true that the same ideas will occur to a number of minds many miles apart at the same time, and it not infrequently happens that patents are set aside through claims of priority. Be that as it may, Dr. Taggart should have the honor of bringing to the notice of the profession the process of accurately casting inlays, and he has a machine to sell for $110 which is a very perfect machine. The dental profession of the United States is large and the financial conditions of many practitioners differ. There are those to whom $110 looks very large, and to them a simple method, and as effectual, such as a small bucket with bail, twirled on a long round nail with a large head, or a tomato can or shoe blacking box filled with wet asbestos is a boon. Then there are other machines which for convenience in country towns excel Dr. Taggart's. Not every dentist wishes to feel that his practice hangs on whether he can get nitrous oxide on the instant or not. Would the profession be justified in acknowledging the Taggart machine as being the only one and smothering the other conveniences? Does Dr. Taggart wish to cut off his generosity to the profession at the completion of his machine, and say: "I wish to smother all other methods and progress along this particular line?" Has any of our men of eminence looked with jealousy on the investigations of others along similar lines and expressed desire to curb them? Eight months' time was a very short period in which to give the profession an opportunity of deciding the merits or demerits of a new process and expecting it to make up its mind concerning its attitude toward the discoverer, and particularly when very few machines could be had during that time. Even at a recent date we have heard Dr. Noyes make the statement that it was almost impossible to get an inlay to suit him.

We are glad to note that Dr. Taggart has been gracious enough to resist the exploiting of the dental profession by a company who offered him $100,000 and a fourth of the stock. If he values his professional appreciation he did the right thing, but subsequently we understand he has formed a company which may have been selected from outside the profession or from a favored few of his professional

friends, and under these conditions we believe few dentists care to hand over to Dr. Taggart $110, of which he is probably not the sole beneficiary and of which it is understood $10 on each sale goes to the fund for fighting the users of any other system of casting.

If Dr. Taggart desires to show a benign attitude toward the profession the only way he can do so is to withdraw his suit. No other construction can be placed on his attitude than one of "give no quarter" so long as a lawsuit pends demanding the purchase of his system. Let him name a rational price for turning over his patents to the profession, now that the value of cast inlays is known and give sufficient time to raise the money, then will be time enough to determine if there still remains a germ of gratitude in the breasts of his fellow practitoners. FREDUS A. THURSTON, D. D. S.

EXTIRPATION OF THE DENTAL PULP.

Always fully expose the field of operation. Do not attempt to extirpate the pulp through an opening which does not afford direct line of access. In cases of evident secondary growth, or where the canal is very much restricted, and where every movement of the instrument gives the patient a twinge of pain, have recourse to our faithful friend, carbolic acid. Have at hand either this or tricresol, into which dip the instrument each time it is removed from the canal. By this means with a little patience the canals can be opened thoroughly with but little pain to the patient.—*Dr. Grafton Munroe, Brief.*

THE VESTIBULE OF THE BODY.

The mouth, being the vestibule for nourishment of the body and much of the air, is one of the most important organs in the body in its bacterial relation. Its great importance to physicians is in its local manifestations of constitutional states. Diseases like syphilis, scurvy, tuberculosis, pneumonia, scarlet fever, small pox, diphtheria, influenza, etc., have demonstrable effects on the oral cavity and adjacent parts, producing interstitial gingivitis, ulcerative and gangrenous stomatitis, pyorrhoea alveolaris and decay of the teeth. These are more noticeable when infection takes place after extraction.—*Dr. E. S. Talbot, Brief.*

EDITORIAL

On the 6th day of March, 1909, there passed away one of the most conspicuous figures of the dental profession. Dr. A. W. Harlan was born on the 15th day of November, 1851, on a farm near Julietta, Marion county, Ind. The greater part of his boyhood days were spent upon the farm, and his early education was in the district schools of that locality. At seventeen he entered the dental office of Kilgore & Helm. He remained there until 1869, when he came to Chicago and entered the office of Dr. J. B. Bell, and from there to Dr. Baker's office, where he remained until he opened an office for himself and was in active practice when the great Chicago fire destroyed everything he had. In the early part of Dr. Harlan's life he identified himself with dental societies, both local and state, and was from that time on conspicuously identified with the progress of dentistry in the United States. In the early part of his career he manifested a great interest in study and advancement of his own personal culture, as well as his professional education. He was beyond any question a splendid example of a self-educated man. He was a good English scholar and had a fair knowledge of French and German.

Dr. Harlan was unusually endowed with a mental capacity and was a keen observer. There have been but few men in the dental profession that could remember the dates and incidents that transpired in the dental profession better than he. He was a man who made, sought and utilized opportunities for his own professional advancement. He was among the earlier members of the profession to strive for the application of therapeutics in the treatment and preservation of teeth, and he did much to elevate materia medica and therapeutics of dentistry. And through his mental capacity and physical endowments he was a student of a higher order of men in the profession of dentistry, and strove diligently and untiringly to establish a scientific therapeutics in his chosen profession. He was for many years a conspicuous figure in the society work in Chicago and the state of Illinois, always championing the cause of materia medica and thera-

peutics and urging the younger members of the profession to identify themselves with the society work, laying stress upon the importance of research and study. He was an honorary member of many dental societies. He was president of the Chicago and State Dental Societies, the American Dental Association, and also one of the organizers of the Odontological Society of Chicago, of which he was always closely identified from its organization in 1882 up to the time of his death. He was one of the organizers of the Chicago College of Dental Surgery. He established the Dental Review in 1886 and was for many years its editor. He was also deeply interested in the organization of the World's Columbian Dental Congress, of which he was the secretary. He was also one of the organizers of the International Federation Dentair. For more than twenty years Dr. Harlan was professor of materia medica and therapeutics in the Chicago College of Dental Surgery, and during that time he was considered one of the ablest teachers in the dental profession. He contributed much to the literature of his chosen specialty. He was one of the official contributors to the American System of Dentistry.

Dr. Harlan was a man of great personality, and this trait was always conspicuous in his writings. His personal appearance on the floor of dental societies was a picturesque one, and carried with it an intellectual power. He was an inspiration to young men, and was always kind and courteous to them, and he did much to encourage them in professional work. It is said by many that he was the father of materia medica and therapeutics. His career as a dentist stands out most conspicuous in his educational efforts in Chicago and the State of Illinois, and he has many professional friends who appreciate his efforts and mourn his loss.

MEETINGS

STATE SOCIETY MEETINGS.

Alabama Dental Association, Anniston, Ala., May 11, 1909.

Arkansas State Dental Association, Hot Springs, Ark., May 26, 27, 28, 1909.

Florida State Dental Society, Ocala, Fla., June 17, 18, 19, 1909.

Iowa State Dental Society, Des Moines, Iowa, May 4, 5, 6, 1909.

Illinois State Dental Society, Danville, Ill., May 11, 12, 13, 14, 1909.

Indiana State Dental Society, Indianapolis, Ind., June 29, 30, July 1, 1909.

Maine State Dental Society, Portland, Maine, June 24, 25, 26, 1909.

New Hampshire State Dental Society, Rutland, May 19, 20, 21.

Michigan State Dental Society, Kalamazoo, June.

Nebraska State Dental Society, Lincoln, Neb., May 18, 19, 20, 1909.

New York State Dental Society, Albany, N. Y., May 8, 9, 1909.

Ohio State Dental Society, Columbus, Ohio, December 7, 8, 9, 1909.

Oklahoma State Dental Society, Oklahoma City, Okla., June 3, 4, 5, 1909.

Utah State Dental Society, Logan, Utah, June, 1909.

Vermont State Dental Society, Rutland, Vt., May 19, 20, 21, 1909.

West Virginia State Dental Society, Wheeling, W. Va., October 13, 14, 15, 1909.

Wisconsin State Dental Society, Milwaukee, Wis., July 13, 14, 15, 1909.

INDIANA STATE DENTAL ASSOCIATION.

The fifty-first annual meeting of the Indiana State Dental Association will be held at Indianapolis June 29-30 and July 1.

Plans are being perfected to make this the greatest strictly state meeting in the history of our society.

OTTO U. KING, Secretary.

Huntington, Ind.

ALABAMA DENTAL ASSOCIATION.

The fortieth annual meeting of the Alabama Dental Association will be held in Anniston, Ala., May 11-13, 1909.

The program will be an exposition of present day methods of practice. Make your arrangements now to attend.

E. W. PATTON, Sec'y.

1010½ Broad street, Selma, Ala.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the state of Illinois will be held in Chicago, at the Chicago College of Dental Surgery, southeast corner of Wood and Harrison streets, beginning Thursday, June 10, 1909, at 9 a. m.

Applicants must be possessed of the following requirements in order to be eligible to take the examination: (1) Any person who has been engaged in the actual, legal and lawful practice of dentistry or dental surgery in some other state or country for five consecutive years just prior to application; or (2) is a graduate and has a diploma from an accredited high school or a certificate signed by a state superintendent of public instruction or his duly authorized deputy or equivalent officer, acting within his proper or legal jurisdiction, showing that the applicant has a preliminary education equal to that obtained in an accredited high school, and is a graduate and has a diploma from the faculty of a reputable dental or medical college, school or dental or medical department of a reputable university and possess the necessary qualifications prescribed by the board.

Candidates will be furnished with proper blanks and such other information as is necessary on application to the secretary. All applications must be filed with the secretary five days prior to the date of examination. The examination fee is twenty ($20) dollars, with the additional fee of five ($5) dollars for a license. Address all communications to J. G. Reid, secretary, 1204 Trude Building, Chicago, Illinois.

KENTUCKY STATE DENTAL ASSOCIATION.

The thirty-ninth annual convention of the Kentucky State Dental Association will convene at Crab Orchard Springs, Kentucky, May 17, 18 and 19, 1909.

We anticipate a most interesting and profitable meeting at this most popular central Kentucky resort. A cordial invitation is extended to all ethical members of the profession.

W. M. RANDALL, Secretary.

MISSOURI STATE DENTAL ASSOCIATION.

The fourty-fourth annual meeting of the Missouri State Dental Association will convene at Kansas City, Missouri, May 26, 27 and 28, 1909. A good, live program is in course of preparation. Respectfully,

J. F. WALLACE,
Corresponding Secretary,

Executive Committee—C. C. Allen, chairman, Kansas City; F. G. Worthly, Kansas City; D. D. Campbell, Kansas City.

STATE BOARD OF REGISTRATION AND EXAMINATION IN DENTISTRY.

The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual examination in the assembly chamber of the State House, Trenton, N. J., beginning Tuesday July 6th, and continue through the 7th and 8th. Practical examination held on the 6th, theoretical examination on 7th and 8th.

Practical work consists of soldering a gold or silver plate, one gold filling and one amalgam filling. Gold filling must be an approximal with an approximating tooth in position. Candidates requested to bring their patients. Photograph and preliminary credentials must accompany the application. Sessions begin promptly at 8 a. m., each day. Applications must be in the hands of the secretary ten days prior to the examination.

CHARLES A. MEEKER, D. D. S.,
Secretary of Dental Commission,
29 Fulton St., Newark, N. J.

EASTERN INDIANA DENTAL ASSOCIATION.

The 1909 meeting of the Eastern Indiana Dental Association will be held at Marion Ind., May 5th and 6th.

The 1908 meeting was postponed that the members might join in the big jubilee meeting of the state society, and the meeting this year is expected to be a record breaker. Clinics are to be the big feature.

LEONARD STRANGE, President.

INDIANA STATE BOARD.

The next regular meeting of the Indiana State Board of Dental Examiners will be held in the State House, in Indianapolis, beginning Monday, June 7, 1909, and continuing four days. All applicants for registration in this state will be examined at this time. This will be the last meeting of the year 1909. For further information and instruction address the secretary. F. R. HENSHAW.

Middletown, Ind.

IOWA BOARD OF DENTAL EXAMINERS.

The next meeting of the Iowa State Board of Dental Examiners for examination will be held at Iowa City, beginning June 7, 1909, at 9 a. m. Practical examination will be held in both operative and prosthetic dentistry. Applications must be in the hands of the secretary by June 1. For further information address

E. D. BROWER, Secretary.

Le Mars, Iowa.

SOUTH DAKOTA STATE BOARD.

The next meeting of the South Dakota State Board of Dental Examiners will be held at Sioux City, S. D., July 13, 1909, beginning at 1:30 p. m. and continuing three days. Both practical and written examinations will be required of all candidates, and all applications, together with the examination fee of $25 must positively be in the hands of the secretary not later than July 5, otherwise they will not be admitted to examination.

G. W. COLLINS, Secretary.

INDIANA STATE DENTAL ASSOCIATION.

The fifty-first annual meeting of the Indiana State Dental Association, to be held at Indianapolis June 29-30 and July 1, will be a profitable meeting to those attending, a meeting that will be noted for its many practical suggestions.

C. D. Lucas, chairman of the executive committee, has completed arrangements for six excellent papers. Four of these from our own state and two from special guests outside the state.

W. S. Kennedy, supervisor of clinics, promises the largest, the best and the mot practical clinic in our history.

No dentist in Indiana who cares for his mental improvement can afford to miss this meeting. Mark off the dates. Do it now!

OTTO U. KING, Secretary.

MICHIGAN STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Michigan State Board of Examiners for the examination of candidates for license to practice dentistry in Michigan, will be held at the Dental Department of the University of Michigan in Ann Arbor, beginning Monday morning, June 14, at nine o'clock. Applications must be in the hands of the secretary at least fourteen days before the examination. Application blanks and rules governing examinations will be furnished by any member of the board.

A. B. ROBINSON, Sec'y-Treas.

MINNESOTA STATE BOARD.

The Minnesota State Board of Dental Examiners will hold a special meeting for the purpose of examining applicants for license on June 7, 1909. Meetings will be held at the Dental Department of the State University, in Minneapolis, Minn. All applications must be in the hands of the secretary by May 28.

For blanks and further information address

Lake City, Minn. DR. GEO. S. TODD, Secretary.

OHIO STATE DENTAL BOARD.

The regular spring meeting of the State Dental Board of Ohio will be held in Columbus on June 15-18 for the examination of applicants for license.

All persons wishing to enter practice in this state must make written application for examination.

Applications must be in the hands of the secretary at least ten days before the date of the examinations and must be accompanied with the fee of twenty-five dollars ($25).

For blank applications and further information address

F. R. CHAPMAN, Secretary.

305 Schultz Building, Columbus, Ohio.

NOTICE.

The pamphlet upon "The Mouth and Teeth," published by the National Dental Association, is now ready and can be secured of

Dr. C. S. Butler, secretary N. D. A., 267 Elmwood avenue, Buffalo, N. Y.

Price 50 cents per hundred.

J. D. PATTERSON, Chairman Com.

NATIONAL DENTAL ASSOCIATION.

The thirteenth annual meeting of the National Dental Association, held at Birmingham, Ala., March 30 to April 2, was a most successful one, with a good attendance.

The papers and discussions were exceedingly interesting and held the close attention of large audiences throughout.

Official action was taken providing for a national Dental Journal, commencing October, 1910.

The committee on revision of constitution and by-laws presented a number of amendments embodying a liberal plan of reorganization. Copies carrying the proposed changes are to be printed and mailed to the membership at an early date, which will give ample opportunity to thoroughly understand same before final action is taken.

The following officers were elected: President, Burton Lee Thorpe, St. Louis, Mo.; vice-president for the west, W. T. Chambers, Denver, Colo.; vice-president for the east, Charles W. Rodgers, Boston, Mass.; vice-president for the south, Thomas P. Hinman, Atlanta, Ga.; corresponding secretary, H. C. Brown, Columbus, Ohio; recording secretary, Charles S. Butler, Buffalo, N. Y.; treasurer, A. R. Melendy, Knoxville, Tenn. Executive committee (new members for three years): C. M. Work, Ottumwa, Iowa; V. H. Jackson, New York City; W. G. Mason, Tampa, Fla. Executive council: H. J. Burkhart, Batavia, N. Y.; B. Holly Smith, Baltimore, Md.; A. H. Peck, Chicago, Ill.; W. E. Boardman, Boston, Mass.; C. L. Alexander, Charlotte, N. C.

Denver, Colo., and the third Tuesday of July, 1910, were chosen as the place and date of the next meeting.

H. C. BROWN, Corresponding Secretary.

ABSTRACTS AND SELECTIONS.

DENTAL CORPS REORGANIZATION.

This bill was introduced in the senate on April 9:

S. 1530, Mr. Bulkeley.—To reorganize the corps of dental surgeons attached to the medical department of the army. That to the medical department of the army there shall be attached a corps of dental surgeons, which corps shall not exceed in number the actual requirements nor the proportion of one to one thousand authorized by law for service in the regular army, and all original appointments to said corps shall be made to the rank of first lieutenant.

Sec. 2. That the appointees must be citizens of the United States, between 22 and 30 years of age, graduates of standard American dental colleges, of good moral character and of unquestionable professional repute, and shall be required to pass the usual physical examination and a professional examination which shall include tests of skill in practical dentistry and of proficiency in the usual subjects in a standard dental college course: Provided, that dental surgeons attached to the medical department of the army at the time of the passage of this act may be eligible to appointment, three of them to rank as captain and the others to the rank of first lieutenant, on the recommendation of the surgeon general, and subject to the usual physical and professional examinations herein prescribed. Provided further, that the professional examination may be waived in the case of dental surgeons whose efficiency reports and entrance examinations are satisfactory to the surgeon general; and the time served as dental surgeons under the act of Feb. 2, 1901, shall be reckoned in computing the increase service pay of such as are appointed under this act.

Sec. 3. That the pay, allowances, and promotions of dental surgeons shall be fixed and governed by the laws and regulations applicable to the medical corps; that their right to command shall be limited to the members of the dental corps; that their right to promotion shall be limited to the rank of captain after five years' service and to the rank of major after ten years' service. Provided, that the number of majors shall not at any time exceed one-eighth

nor the number of captains one-third the whole number in the said dental corps.

Sec. 4. The surgeon general of the army is hereby authorized to organize a board of three examiners to conduct the professional examinations herein prescribed, one of whom shall be a surgeon in the army, and two of whom shall be selected by the surgeon general from the contract dental surgeons eligible under the provisions of this act to appointment to the dental corps.

Sec. 5. That the annulment of contracts made with dental surgeons under the act of February 2, 1901, shall be so timed and ordered by the surgeon general that the whole number of contract and commissioned dental surgeons rendering service shall not at any time be reduced below 30.

RESPIRATORY OBSTRUCTION IN RELATION TO THE TEETH.

EDWARD W. FOX, B. S., M. D., TRINIDAD, COLO.

There are no two professions more closely associated than rhinology and dentistry.

The oral cavity and the nasal fossæ are so closely related that pathological changes in one are very frequently productive of changes in the other.

The rhinologist who does not appreciate the important rôle that the teeth play in the production of nasal and accessory sinus diseases, and likewise in otological practice, is overlooking a most prolific source of causative factors. Conversely it is imperative that the dentist, and especially the orthodontist, be familiar with the disastrous influences that obstructive nasal conditions have upon the integrity and irregularity of the teeth.

The nasal fossæ are two large irregular cavities. Normally they are divided equally by the nasal septum and should be so constructed that no two parts approximate. This is the ideal nasal cavity which nature so intended; it is, however, a condition which we do not frequently find. Where there is present an approximation of surfaces we have a catarrhal condition manifested by an increase of secretion. If there is a marked approximation there is produced an obstructive condition. As the obstruction continues, nasal respiration is prohibited and the pernicious habit of mouth-breathing results.

The development period when the tissues are yielding, and before the bony structures of the face have become firmly united, is especially the period when the pernicious habit of mouth-breathing leaves its indelible impression.

Speaking of abnormal development resulting from mouth-breathing, Kyle says: "The repeated contractions of the muscles controlling the nasal orifices necessitated by the forced nasal respiration, bring about a drawing of the facial muscles, and by this drawing down the upper jaw is retracted and the contour of the upper arch altered. The hard palate then, instead of forming a perfect dome, has its anterior portion tilted and the upper portion of the base of the nose drawn in."

The results of mouth-breathing are both local and constitutional, (1) locally by the mechanical pressure brought about by the direct impaction of air upon the roof of the mouth, ultimately determining the contour of the alveolar arch of the superior maxillary bone; (2) constitutionally—the remote influences are those operating upon the thoracic and gastric organs.

With the local influences we are more concerned in this article. There has been a diversity of opinion between the rhinologist and the dentist as to the rôle played by such obstruction.

There are, no doubt, a number of factors operating in the causation of irregularity of the teeth, yet it is, I believe, the consensus of opinion among orthodontists that nasal obstruction is markedly present in 75 per cent of the cases presenting irregularity of the alveolar arch, and is usually found to some extent in a large proportion of the remaining 25 per cent.

The pathological condition which is the most potent cause of nasal obstruction is the enlargement of the pharyngeal and faucial tonsils, the formerly commonly known as adenoids. The conditions situated within the nose are the deflected septum, enlarged turbinals and polypi. The pharyngeal tonsil, which is usually the offending factor, is a normal physiological glandular structure. It undergoes atrophic changes before adult life. It becomes pathological only when it gives rise to symptoms. Being composed of glandular elements and externally of thin connective tissue trabeculæ, it undergoes very readily vascular changes from both direct and indirect causes.

Any constitutional condition presenting a want of vascular tone, viz.: Anemia, syphilis, tubercular diathesis and lymphatism or those diatheses associated with increased permeability of the vessel walls,

readily produce either a periodic or a constant enlargement of this pharyngeal tonsil, with consequent obstruction of the air passage.

The presence of adenoids is almost pathognomonic. The characteristic listless expression, the presence of mouth-breathing, the parted lips, the frequent colds in the head, and the confirmatory signs elicited by digital examination.

It is necessary, in order that the orthodontist accomplish satisfactory and gratifying results, that this condition receive its proper treatment.

The treatment is moth medicinal and surgical. If the condition is seen before inflammatory organization has resulted, the local application of medicinal agents is in some measure efficacious. Surgical measures, are, however, more certain and lasting.

The age at which adenoids should be removed is, as I have previously stated, during the developmental period or about five or seven years of age.

If the symptoms are marked they should be removed earlier. Infancy has no contra-indication.

THE CASTING PROCESS AS APPLIED TO INLAYS OF GOLD AND OTHER DENTAL USES.

BY J. G. LANE, D. D. S., PHILADELPHIA, PA.

So much interest and attention have recently been directed toward the casting process, with its manifold applications to dentistry, that we assume that every practitioner in the dental profession today has at least a general knowledge of the work and the principles involved. On this assumption we deem it unnecessary to present the method as a whole. Many have already become proficient in the process; others are learning its enticing wiles, and we suppose that nearly all are experimenting in casting, and will likely continue to do so for a long time.

The range of the casting process is all the way from the tiniest inlay to a base for a full denture. It is thus seen to be applicable to much of our work. The work is very enticing; it may easily be made the means of reducing the manual labor and fatigue that go hand in hand with our dentistry, and it is in many cases a means of accomplishing very satisfactory results. But these very conditions may be

the very undoing of the process—which is, in itself, one of the best and most useful that the restorative feature of operative dentistry has had in many years. With all its great range and possibilities, it also has its judicious limit of application and usefulness, and must not be looked upon as being capable of taking the place of all other methods for the same general lines of operations. The method, indeed, does lighten our labors, and any method that is capable of gaining this result is justifiable from this standpoint alone *if it does not sacrifice results.* Any method—no matter how enticing, or easy, or apparently applicable—that will not in every case get the best results that would otherwise be possible, must be either cast aside or so modified that such results are obtained. The casting process is by no means a lazy or careless man's method. The precision possible with this process will be followed by perfect results only when the utmost good judgment and carefulness are used in the details of every stage of the work. The little defects that characterize our efforts are almost invariably in exactly the right positions to cause the most trouble. Little details must therefore be guarded with the same jealousy as major principles.

The principal use to which we may apply the casting process is that of making gold inlays. Other uses are that of casting crown foundations, cusps on shell crowns, bridge dummies, pyorrhea splints, bases for artificial dentures, and an almost limitless variety of miscellaneous uses.

We had for many years been making gold inlays by various other methods, but the gratifying accuracy of adaptation that we now enjoy is possible only with the casting process; and this same accuracy and perfection of adaptation constitutes the most important factor in the invulnerability of an inlay. The use of gold inlays cannot be considered as taking the place of porcelain inlays. Each has its place in dentistry and neither will properly take the place of the other. But as gold inlays will not fracture, and it is possible to obtain a greater accuracy of adaptation with gold than can be had with porcelain (and thus reduce the surface cement line to a greater minimum with the former than with the latter), we consider it good practice in inlay operations to give gold precedence over porcelain up to the extreme degree of esthetic limits. But we can in no case gainsay the preference of porcelain where esthetic conditions are imperative. A more

permanent operation is possible with a gold inlay than with a gold filling. The reasons for this are abundant. From a therapeutic standpoint we know that a gold filling is the very poorest filling that we can insert. Its efficiency as a tooth saver depends upon its being a plug that is so closely adapted to the cavity margins and walls as to preclude the possibility of leakage — either to moisture or gases. (It is just possible that we would be horrified if we knew what percentage of new gold fillings did not possess these supposedly present requisites.) Its contact with the enamel and dentine renders no immunity whatever to these tissues by therapeutic or chemical action. The amalgams, gutta-perchas, and so-called cements, do possess these values, particularly amalgams and cements. In the latter material is the additional feature by which, when it is placed in the cavity in plastic condition, that cavity is hermetically sealed and its interior rendered immune as long as it remains thus covered. It would therefore seem that in the cements we have an almost ideal filling material. However, the fact that it will not long withstand mastication and the action of the fluids of the mouth, curtails its usefulness to what we might designate as "temporary work." In the gold inlay we have the immunity brought about by the cement; we have the cavity hermetically sealed, and have gotten rid of the objectional "temporary" surface condition by using a surface material that is malleable to such an extent that its margins may be manipulated with a burnisher. The cavity is thus protected by cement, the cement protected by gold, and the gold is able to take care of itself. In a properly executed gold inlay operation we have a repair that is ideally perfect from every viewpoint except from an esthetic one, and, if judiciously and suitably placed, this objection is reduced to a minimum.

As previously stated, the scope or range of application of gold inlays has its limit. It is not wise to cast gold inlays for pit cavities or any very small cavities—either masticating or inter-proximal—except for very special reasons. Ordinarily such cavities can be filled more advantageously with gold fillings. In buccal or labial cavities where gold is to be placed, we believe an inlay possesses more merit than a foil filling, and would advise an inlay, unless such cavity is extremely small. Aside from the durability of an inlay operation in these sensitive and troublesome cavities, our patients will bless us for

the humane features of the operation. The cast inlay process is not a rapid one, and the time consumed renders it prohibitive for very small work. The usefulness of cast gold inlays is most apparent in the large masticating and compound cavities in the molar and bicuspid teeth. In these masticating cavities we need the durable surface that a fused mass of gold possesses and the accuracy of adaptation gotten only by the casting method. In the compound cavities we usually find such irregular shapes as are practically impossible to be fitted by any other method. By the casting method it matters not what the irregularity of the cavity may be. So long as the pattern will draw without distortion, the inlay will fit. This cannot be said of any of the other methods. A most important factor in cast inlay work is the extremely malleable condition of a pure gold inlay. By reason of this condition its margins may be burnished immediately after it has been cemented into the cavity until all trace of the cement line will have been pinched off. No other method of making a gold inlay provides an edge that will admit of the same possibility in burnishing. It may be argued that this same condition of extreme malleability of a pure gold cast inlay makes it unfit to withstand the violence of mastication. This will, indeed, be the case unless in the final finishing of the inlay we render it otherwise. This is easily and effectively accomplished by a good strenuous burnishing with an engine furnisher of steel (or preferably agate). A still harder surface is obtained by using a corrugated engine burnisher. Or even the density obtained by this could be increased by the use of a mechanical, electric or automatic mallet. It is only the masticating surfaces of inlays that would require such density, and these can easily be reached by any of the methods and instruments mentioned.

In order that inlays may be successful, it is important that the cavities which are to receive them be properly prepared. Unless this is done, the most perfectly made inlay is likely to be short-lived. There are certain fundamental principles which govern the preparation of cavities for gold inlays. Some of these principles apply with equal force to all cavity preparations; others differ widely from the principles which apply to cavity preparations for gold fillings or porcelain inlays. The next articles in this series will consider cavity preparation from gold inlays, from the viewpoints of "extension for prevention," "extension for convenience," "extension for anchorage," "locating the cavity margin" and the "marginal angle."—*Digest.*

CASTING, WITH SPECIAL REFERENCE TO CASTING ON PORCELAIN.

BY W. C. GILLESPIE, D. D. S.

The process of casting metal under pressure has opened the greatest field of possibility for saving and restoring teeth that the dental professional has come into in many years. The casting machine stands next to the dental engine in line of improvement in dental equipment and in variety of uses to which it may be put.

There are countless numbers of devices for casting metal under pressure, but all are variations of four basic types—those that utilize centrifugal force, suction, compressed air, or steam pressure.

The application of pressure casting—a very old process—to dental art will raise the general average of tooth-saving ability, practical merit, and artistic product of the profession because it will enable the less skillful practitioners to form in plastic substance and reproduce in metal better dentures than they were able to do direct in the more refractory substances.

Casting is neither an experiment nor a fad; neither can it be conducted on the nickel-in-the-slot basis. A few porcelain facings or teeth and a little scrap gold dumped into the machine before you go to dinner will not be a beautifully finished bridge when you return. Brains are as essential to successful casting as a properly constructed casting machine and necessary materials.

The limitation of the application of casting depends entirely upon the ingenuity and skill of the one who employs the process in constructing dental restorations. By this means anything of which a mold may be obtained may be reproduced in metal with ease.

Castings consisting entirely of metal, such as inlays or all-gold bridges, may be produced; or gold may be cast directly in contact with porcelain surfaces without a previous adaptation of backing. A simple inlay or a six-tooth bridge may be cast with the same ease and same amount of labor in so far as the casting is concerned.

The amount of time required to cast an inlay may be as long or shorter than would be required to condense foil in the same cavity; but the physical labor is not a tenth part so strenuous, and the patient will rise up and call you blessed. More patients may be seen in a

day, because when the wax model is obtained the patient may be dismissed and the casting made when there is nothing else to do.

The advantages of cast gold over welded gold is too well understood to need comment, and where the inlay is preferable to a condensed filling depends entirely upon conditions to be met in each case.

The time required to construct a bridge by the process of casting is very much less as a rule than that by soldering, and the time and labor are just as much less as would be necessary to do the things avoided by the process of casting—namely, greater amount of grinding porcelain bodies, backing making dies, swaging cusps, waxing cusps in position, coaxing solder to go where you wanted it and grinding off the excess solder you knew you did not need but were afraid not to put there.

The time required to wax up, invest, dry out, and heat up is the same for either process; but the actual casting requires much less time than building up the amount of solder would do.

Grant for the sake of argument, that the time required by both processes is the same for a given case, the results obtained, labor and material saved, and avoidance of fatigue and discomfort to the patient place casting far ahead of condensing fillings and soldering crowns and bridges.

The dentist who casts only inlays is certainly blind to the possibilities of a simply wonderful and wonderfully simple process which he is employing only in its most insignificant application, as valuable as the process of casting inlays may be. And the dentists who does not cast at all is either utterly non-progressive or too cautious for his own and his patient's best interests.

The process of casting, intelligently employed, is thoroughly applicable to the construction of shell crowns, all-gold bridges, retaining appliances for regulations or pyorrheal teeth, porcelain-faced crowns, bridges wherein porcelain facings, ordinary rubber-plate teeth, diatoric teeth, saddle-back teeth, removable-pin crowns, or Logan crowns are employed for abutments and dummies and for adapting Logan crowns to roots.

Any type of porcelain tooth may be cast upon without backing, but care should be exercised not to use a tooth with pins soldered in position or a pin of composition metal that might have a fusing point below that of gold.

Backing as employed in the old process was to give a surface upon which solder would flow evenly and not ball up. It had little to do with the prevention of checking of porcelain, however contradictory that may sound to the teachings and accepted theories of the past. A direct contact of porcelain with heat or flame will not cause checking, provided the cold body is not thrust suddenly into a flame or furnace, but is permitted to heat gradually at first. It may then be carried to a degree considerably above the fusing point of pure gold; and if allowed to cool gradually, no checking will occur, though this be done repeatedly.

Borax never yet caused a piece of porcelain to check, except indirectly; yet this statement would be regarded as damning heresy by the old masters. These things I have proven by hundreds of tests and experiments during a practice of nine years and four years' experience with a porcelain furnace. While writing this paper I have had in my electric furnace an ordinary plate molar tooth, a Logan crown, and two diatoric molar teeth, which were rolled in damp powdered borax and placed in the furnace covered with a layer of borax, and the hole in the diatoric teeth filled with it. A nugget of pure gold was placed with them and fused, and the teeth came out without a check, but were most beautifully glazed on surfaces that had been ground with a stone. The borax may unite with the porcelain and cause it to become more brittle if carried very high, but the experiment is cited in proof that it does not directly cause checking.

Checking of porcelain is more often caused by unequal expansion and contraction than anything else. This is due to lack of uniformity of distribution of heat or the sudden heating or cooling of the surface or part of the porcelain body. Different degrees of heat produce different degrees of expansion and the surface or some portion of the body of porcelain heating or cooling faster than the interior or some other portion of the mass; and porcelain being a low conductor of heat, an unequal stress is set up that is relieved only by fracture.

Fracture is also caused by permitting molten solder in soldering or molten gold in casting to flow around an edge, and in the contraction of cooling a grip is set up that will break any porcelain made. Such fracture is due to improper waxing up of the case for either soldering or casting.

It is also claimed that a metal pin in a porcelain body—such as the post of a Logan crown—will expand faster than the porcelain, and thus cause fracture. That claim sounds plausible, but is little more than sound, for a degree of heat that would expand the metal sufficiently to do that would have already fractured the porcelain by suddenly expanding the surface. Also where there is a post baked into a tooth heat will be conducted into the center of the mass by the metal as well as being absorbed by the surface, and the distribution will be more uniform than if the post were not present. If the heat were applied to the post directly and conducted to the interior of the porcelain while the surface received a much lower heat, then the expansion of the post and the layer of porcelain surrounding it would be faster than that of the surface, and fracture would result. But to do that would require considerable trouble to bring about something nobody wants.

The fractures indirectly caused by borax are brought about by a union of borax with the porcelain, causing it to lose its elasticity and become more brittle, as is the case when gold is alloyed with some base metals. This loss of elasticity renders it less capable of resisting the stress of expansion and contraction, and a slighter inequality of temperature will cause a fracture than if the integrity of the porcelain had not been impaired.

An inlay or all-gold casting of any nature may be successfully cast in a comparatively cool or a cold mold, as is proven by castings of iron and brass foundries. But to cast upon porcelain without fracture the mold must of necessity be brought to such a temperature that the porcelain bodies contained will be subjected to no undue strain of unequal expansion by sudden contact with molten gold of much higher temperature.

The investment ring is readily raised to a red heat; but investment material is a low conductor of heat, and several minutes will elapse before the heat is distrbuted throughout the mass. So, unless sufficient time is given, the porcelain in the mold will be several hundred degrees cooler than the surface, and the molten gold forced into the mold will fracture the porcelain just as cold glass fractures by sudden contact with hot water. Get the porcelain in the mold thoroughly hot, and you may cast all the gold on it necessary for any denture ever put in the mouth, and the tiniest facing will never be checked if properly waxed and invested. No flux is needed for any

cast, and borax when fused is very sticky and, uniting with the investment, interferes with the entrance of gold into the sprue-hole.

Logan crown joints may be fitted as accurately as the margins of inlays, and thus they become the most perfect crown restorations known to the profession, and may be perfectly adapted to roots gone far below the gum line all around or at any point. Molar stumps in the same condition may be easily and beautifully restored the same way by placing a pin in each canal and using plate teeth with pins baked in or diatoric teeth. No fear need be had in casting into diatoric teeth, for the molten gold enters the recess in them at its maximum expansion, and the contraction upon cooling makes the post thus formed slightly smaller.

Removable pin crowns, such as Justi's, the Davis, etc., have no lateral openings, as have the diatoric teeth; consequently the molten gold will not enter and completely fill the recess provided for the pin because there is no avenue of escape for the air caught in the recess. It, therefore, is better to remove the crown from the wax before investing, and the porcelain need not be subjected to heat at all, but may be cemented on the post after the gold that perfects the adaptation to the root has been cast onto the post.

To use such crowns for dummies, clip the post off to the desired length, insert in crowns, wax crowns in position, chill with ice water, slip crowns off posts, cast, and cement crowns in place, and you have a most beautiful and practical case. Crowns and dummies thus constructed are far less apt to break away than those backed and soldered, for they are supported by perfect contact of gold at every point, while a backing touches only here and there, and their retention depends almost entirely upon the strength of the pins baked into the porcelain. And if one should break, grind up and cement another on the post left standing.

Pure gold should be used for inlays and 22-karat gold for everything else. In casting inlays and shell crowns do not waste gold by casting them unnecessarily thick. Hollow inlays are easily made, a much stronger retention is secured, and a greater thickness of cement protects the pulp from thermal irritation. There is on the market a device consisting of a hollow metal bulb, with small extending point, through which a hole extends back to a tube to which is attached a rubber tube with a mouthpiece. This end is taken in the mouth, the metal bulb is heated, and when the hot point is touched to the surface

of the wax model to be hollowed out the melted wax is instantly sucked back into the bulb, leaving edges as clear-cut as if cut with a knife. The same thing may be done with an ordinary hot-air syringe or chip blower having a bulbous nozzle. Solder to the nozzle the shank of a hypodermic needle, having bored out the needle with a small drill. Connect the rubber bulb to the metal tube with six or eight inches of rubber tubing, so the bulb may be worked with one hand and the metal point directed steadily with the other. Mount the wax model of the inlay on the sprue-pin fixed in a base to hold it steady, and then with the point heated suck out any kind of undercut or hollow you desire.

This is but a small part of the merits and possibilities of the process of casting as applied in dentistry; but too much time cannot be taken up with one writing.—*Dental Headlight.*

A METHOD OF TIPPING MOLARS AND BICUSPIDS, USING STEELE'S INTERCHANGEABLE TEETH.

BY DR. J. A. TAYLOR, ELDON, MO.

Select a facing of the proper width and shade but a little longer than the case would seem to require. Select a backing slightly longer than the facing. Grind off the incisal end of the facing back to the hole and slot so it will slip on or off the backing from either end. Place the facing on the backing and center it as near as practicable, over the place in the backing where the post is soldered to it. Then saw or grind the backing off at each end flush with the facing. Swage a cusp to fit the case by any favorite method and fill the buccal cusp level full of 20-karat gold solder, bring it to a smooth flat surface on the lathe. Wax the backing to the cusp with the facing in place, and try the tooth on the case; you can move the cusp in this way and procure perfect occlusion. Note the change this makes in the joint between the facing and cusp, and slip the facing off and grind it to fit again. Be very careful to have the outside of the cusp a little larger than the facing in order that you can file the gold toward the porcelain in finishing and make a smooth joint.

Now remove the facing by sliding it off the gingival end of the backing, paint the backing thoroughly with Steele's Antiflux and invest and solder the backing to the cusp.

You now have a complete tooth with a removable facing; a solid gold completely contoured cusp, and one that fits your case exactly. It is impossible to break it except from external causes.

In case of breakage, clean away all broken porcelain and cement from around the backing cusp and post. Select a facing as before and grind end off back to the hole and slot. If possible, slide it on to the backing as before, starting the incisal end of the facing on at the gingival end of the backing. If the gums and ridge will not admit of this, then with a thin "Jo-dandy" disk, enlarge the slot until it will be the width of the diameter of the post or slightly wider. Press the face on with a good cement and hold to place for a few minutes. There being absolutely no strain on the porcelain the cement will hold it.

I am of the opinion that if this method is once tried, it will be adopted. I think there is nothing equal to Steele's teeth for centrals, laterals and cuspids, and with this method of tipping the bicuspids and molars, we have almost reached perfection.—*Era.*

EMPIRICISM VS. RATIONALISM—"PYORRHOEA" VS. "ALVEOLITIS."

BY J. H. CRAWFORD, D. D. S., PITTSBURG, PA.

The gradual awakening of the dental and medical profession to the fact that so-called "Pyorrhoea Alveolaris" is a disease amenable to treatment has brought about more or less discussion of its characteristics and methods of treatment. This discussion and the methods of treating the disease have been, and are, more or less empirical, partly because of our lack of knowledge of the conditions and partly because we have had thousands of preceptors who said, "It's incurable. Extract."

Can we as reasonable, rational, professional men, allow this ignorant empiricism to dominate us to the extent of sacrificing thousands of teeth which may be made useful, sacrificing the health of hundreds of patients who come to us for services and advice, and are willing to pay for both? Shall we not rather get together to investigate and confer and compare, and out of it try to get such a reasonable argument as will convince ourselves and our doubting brethren that this mental condition of ours, and this physical condition of our patients may be successfully combatted?

The writer's opinion is that most of the positive opinions as to the incurability of "Pyorrhoea" have come from personal failures in attempting to combat the disease, and that these failures have come from our failure to carry into practice the idea of the necessity for perfection of detail.

In no branch of the work which we as dentists are called upon to do is the need of perfection of detail so great.

Dentures may be an approximate fit and still be worn by patient with more or less satisfaction.

Bridges may be an approximate fit, or comparatively clean, or fairly good looking and still be worn by the patient.

Fillings may be approximately contoured, or extended or condensed and give the patient no annoyance for a while.

We will assume that no dentist who is looking toward the best interests of his patients will do any of these things, but will attend to perfection of details in all operative and prosthetic procedures.

There are those among us, however, who, though painstakingly thorough in their operations upon the crowns of teeth, are unmindful of the condition of the tissues which support those teeth. There are those among us who build their houses upon the sands. There are some who attempt to remedy diseased conditions of, or about, the roots of teeth who do not give to this part of their work the same attention to perfection of detail which they give to their other operative or prosthetic operations. Therefore, they and their operations fail because this work requires a greater degree of perfection of detail than any other in the mouth.

If, then, we have sufficiently emphasized the need of perfection of detail, let us start to apply it to our nomenclature, our theories, our practices, our teachings, and writings, instead of groping in the dark for something hidden under the misnomer "Pyorrhoea."

There can be no defense whatever for the general characterization of these conditions under the name "Pyorrhoea," which is at best a very illogical abbreviation of the very long and indefinite "Pyorrhoea Alveolaris," which succeeded the even less definite and less understood term, "Riggs' disease."

The medical practice is to name a disease according to the tissue or organ on which it is found, using a prefix or suffix to denote the characteristics of the disease or infection. Such terms as Brights disease, etc., have been eliminated from medical nomenclature.

May we not then begin to break away from the empiricism which has bound us and hampered us by adopting some terms which will more accurately describe these conditions, and which will leave us room to add some new prefix or suffix as our knowledge increases regarding cause or effect?

In presenting these suggestions the writer claims no originality but regrets his inability to give proper credit to the real originator of the terms which he is simply trying to endorse, repeat and emphasize. He first heard one of the terms used by Dr. Jungman, of Cleveland, and later in a paper by Dr. Fletcher, of Cincinnati, but is free to confess his ignorance as to the real originator of the terms.

A teacher in one of our colleges recently said that he cared nothing for the name, but the writer's contention is that in practice, teaching and dental literature, there is a crying need for "perfection of detail," and that this perfection of detail must apply to the name, diagnosis, and treatment, if applied at all.

Perfection of detail in the mere handling of scaling instruments will not be effective in the treatment of syphilitic alveolitis. We must know first whether we have syphilitic alveolitis to treat, and we cannot recognize that so long as we call every disease in the alveolar locality "Pyorrhoea."

Inflammations are commonly indicated by the suffix "itis." Therefore, inflammation in the alveolus may be properly termed "alveolitis," and under that name would be understood by many who are now in doubt as to the real disease known as "Pyorrhoea" and "Riggs disease." Indeed, there seems to be some doubt as to the exact condition which Riggs named.

There is probably little doubt as to the fact that there are several kinds of, or stages of, so-called "Pyorrhoea." The name "alveolitis" will admit of these stages being described by adjectives used as prefixes. For instance, acute alveolitis, chronic alveolitis, suppurative alveolitis, would each convey a certain and definite meaning.

Also where the character of the infection is known, it can be indicated by adjectives such as "tuberculous" alveolitis, "syphilitic" alveolitis, etc.

Just one more word now in regard to the reason for perfection of detail regarding the name of the disease to be treated—the reason is that it must cause greater appreciation of the *need of perfection of detail in diagnosis.*

Who among us is able to say what are the possibilities of perfection in diagnosis of these conditions? We must admit that we are in the A B C's of our knowledge of these conditions, regardless of the fact that we are saving thousands of teeth by simply scraping the roots. Perfection in detail in diagnosis must include something more than the search for calcic deposits upon the crowns, necks, or roots of teeth. It must embrace the search for necrotic or carious alveolar process. It must embrace the facts in the history of the case, the habits of the individual, working, sleeping, eating, drinking, their dietary and methods of mastication, their ideas of general and oral hygiene, etc., etc., until we approach perfection of detail in diagnosis.

Perfection of detail in treatment must not be considered as a comparative ideal to aim at. It must be attained if perfection in results is to be attained. Since some of the procedures in the treatment of one kind of alveolitis are similar to those employed in the treatment of another kind, and different from those employed in the treatment of another stage of the same kind, we find still more reason for emphasizing the need for perfection of detail in naming, diagnosing and treatment of the various conditions and stages.

For instance, in a simple alveolitis, caused solely by a deposit upon the neck and root of tooth, we need simply to remove all of the deposit, plane or polish the root to a smooth surface, thoroughly remve all infected tissues, and foreign matter from pocket, and *keep it clean,* and perhaps artificially aid circulation to the part by massage.

In a case of suppurative tuberculous alveolitis, where a large or small area of process is carious, r where the caries has penetrated to the antrum, or, in a case of syphilitic alveolitis where a large area of necrotic bone exists, or in a case of chronic suppurative alveolitis where tooth and deposits are being exfoliated because of non-occlusion and by Nature's effort to get rid of the irritant tooth and deposits, shall we say that the treatment is the same as for the case of simple alveolitis noted above?

Is there not a need for perfection of detail in differential diagnosis here and for perfection of detail in the treatment of these various conditions?

Is it not high time for us to break away from "If pyorrhoea exists scale the roots"?—*Dentists' Magazine.*

SOME SUGGESTIONS ON ARTIFICIAL DENTURES.*

BY W. A. GIFFEN, D. D. S., DETROIT, MICH.

Multiplicity of methods is the bane of our profession; in fact, I think too many methods are employed in taking impressions of the mouth, because, while this is one of the most important operations in the practice of dentistry, an accurate impression is the exception rather than the rule.

In describing the method I practice in taking an impression, I shall consider the taking of a partial impression for a partial denture, either upper or lower.

I select a full tray (Angle's design), large enough to pass over all the teeth remaining in the jaw and if the rim of the tray interferes with the soft tissues when the muscles of the lips and cheeks are contracted, I trim it off and make it smooth, so the plaster will not stick to it. I then rub a little vaseline, in which a small amount of wintergreen oil has been incorporated, over the inside of the tray and on the labial and buccal surfaces. I now mix a sufficient amount of plaster, place it in the tray, and carry it in position to the mouth. When the plaster commences to stiffen, I hold the tray firmly in position and ask the patient to try and displace it by contracting the muscles of the lips and cheeks. This forces the plaster close to the gums and has a tendency to compress any flabby areas of tissue which there may be. Any excess of plaster that has been compressed over the edge of the tray is now removed, and as soon as the plaster is hard I remove the tray, leaving the plaster in the mouth.

I remove the plaster by cutting grooves in suitable places, depending upon the location of the remaining teeth, and take it out in pieces, as few as possible, rinse them in water to wash off all small particles from the fractured surfaces, and allow them to dry. When the pieces are dry I put them together and secure with sticky wax on the outside of the impression. If the broken fragments need support, I lay one or two matches across the backs of the impression and secure them to each fragment with wax.

There is no simpler or surer method of obtaining an accurate impression, as plaster (which undoubtedly is the best) is the only im-

*Read before the Michigan First District Dental Society, November 12, 1908.

pression material used and the use of all forms of partial or special impression trays is dispensed with.

After the model is made the mouth is again examined and all soft or spongy areas are marked on the model, and enough plaster scraped away so that the denture, when completed, will compress these areas, thus giving the denture firmer support in every way.

I use French's plaster, as it cuts rather easy, breaks with a sharp fracture and sets rapidly.

In taking a full impression, I select a tray a little larger than the arch, and trim the edges so that it will not interfere with the soft tissues when the muscles of the lips and cheeks are contracted.

A sufficient amount of Perfection impression material, softened to the right consistency, is now placed in the tray and pressed to position in the mouth. The muscles of lips and cheeks are stretched, in turn, over the edge with a sharp knife, as well as that portion filling any undercuts over the buccal or labial surfaces of the ridge.

I now have a tray that not only fits but compresses the tissues of all the flabby or spongy places, as I think they should be.

The inside of the tray is now coated with a little plaster, mixed thin, and again placed in position in the mouth. When the plaster begins to set I hold the tray firmly in position as with the partial impression, and have the patient try to displace it by contracting the muscles of the lips and cheeks, thus forcing the plaster around edge of tray into any hollows over the ridge on the buccal or labial surfaces, and also compress any spongy areas of tissue there may be.

When the plaster is hard, remove the impression. The rim will break off when there are any undercuts, but can easily be replaced and waxed in position. By following this method I think we can get the most accurate impression possible.

PLASTER CASTS.

When the impression has been prepared for pouring the cast, I make a matrix out of base plate wax, so that the vertical diameter of the model will be approximately the same as the horizontal diameter. I then attach the matrix to the impression.

We know that plaster expands a little during the hardening process (and like all other plastic materials which either contract or expand during this process) is liable to change shape, and more especially in the direction of the least resistance. So if the resistance

in each direction is as nearly equal as possible, the danger of warpage is minimized.

There is no doubt in my mind that the reason so many so-called "rocky" plates have to be made over is because the cast was made too shallow and became warped during the setting process.

When I am ready to place the cast on the articulator, I simply saw off the portion I have no further use for.

I use Knickerbocker plaster, as it makes a very hard, strong cast if properly mixed.

Place plenty of water in the bowl and sift plaster in until it is about level with the surface of the water. Use a very narrow spatula and stir it just enough to mix it, because continued stirring causes too much air to become incorporated, with the result that the cast is not as dense or strong.

If there should be too much water, add more plaster; do not pour off any excess water, as some of the elements of crystallization which are in solution will be lost and the cast will not be so hard.

For vulcanite dentures I make temporary base plates of Ash's No. 7 soft metal. I cut a piece of metal to size and roughly shape it upon the plaster model, with the fingers, then swage it to place on the model with Ash's flat rubber block swager. It takes less time to make them, and they are far superior to trying in plates made from wax or any other plastic material. They do not change shape under the heat of the mouth, fit accurately, and are preferred by the patient. The models can also be kept in better condition, as they are always dry and there is no danger of getting them marred by hot wax.

These base plates form a proper foundation upon which to form rims of base plate wax to obtain the proper relation of the jaws to each other, for establishing lost facial contour, and all other steps necessary to obtain proper anatomic occlusion of artificial teeth.

Dr. J. H. Prothero, in concluding his treatment of this subject, in the March number of the *Dental Review*, says: "I am convinced that the system of anatomical occlusion of artificial teeth is now logical and practical and capable of every-day application; that with each one now it is only a question of securing the proper appliances and working out the details in a practical manner. Further, that he who earnestly and sincerely makes an attempt along the lines mentioned

can not fail to see the utility as well as the simplicity of the method described, and will discard the plain line articulator, which is incapable of producing the most essential masticatory movements." Personally, I wish to add that the more I learn and understand his method, the more I think he is right.

Another good feature about the swaged soft metal base plate for upper dentures is that the natural contour of the soft tissues of the palatal surface is reproduced in the soft metal, which takes the place of wax until the invested case is separated, the result being a denture whose palatal surface is a perfect representation of the mouth, while the rubber is of uniform thickness.

In vulcanizing rubber dentures, tin foil should be burnished over the cast and also over the palatal surface of base plate, in order to get the proper finish.

Another nice way to finish a vulcanite denture is to line it with gold. To do this, take a piece of gold about 50 gauge, press it with the fingers to a rough fit on the model, remove and trim to size; replace gold lining, lay soft metal base plate over it and swage to place. Should the gold lining split under the pressure, lift off the base plate, place a piece of gold leaf over the split, and swage as before. Small retaining tags should be soldered to it, where necessary, so that it will be firmly attached to the rubber. This makes a very beautiful denture.

I am constructing a plate now, using platinum, gold and rubber, which I think will be very artistic, strong and clean. I am using platinum, rolled very thin, as a lining, but instead of using retaining tags to attach it to the rubber, I have reinforced it with gold wire 18 gauge, around the edge, which, of course, makes a beautiful finish. I have also soldered an ornamental gold plate strengthener to the palatal surface, which also acts as a conductor of thermal change to the platinum lining. It will have all the advantages of a gold plate, be more beautiful, and rank second only to a continuous gum plate.

GOLD DENTURES.

To make a double plate gold denture, secure a fusible metal die from the impression; on this die swage a 30 gauge gold plate; solder finishing wire to edge. This plate is now used as a soft metal base plate until the teeth are articulated and all contouring of wax finished.

Then slightly oil the lingual surface and pour a plaster core into it; when set, remove the core, make a matrix of plaster of paris around it, and pour the fusible metal over it. This gives a die of the lingual surface of the denture, into which the second or top plate is swaged.

The last plate swaged is now placed in position and the case flasked in order to prevent any alteration in the bite. The plates are then removed from the flask and soldered. The top plate should be left one-eighth of an inch shorter than the bottom plate, as this leaves a ledge at the distal end upon which pieces of solder are laid. Retaining tags are now soldered to the buccal and labial surfaces to give attachment to the rubber; it is again placed in the flask and the case is ready to pack, vulcanize and finish.—*Dental Register.*

THE IMPORTANCE AND ECONOMY OF CORRECT BITES.

BY G. W. CLAPP, D. D. S.

PROPERLY MADE, BUILT-UP BITES.

The importance, and, indeed, the necessity of built-up bites to good plate work cannot be overestimated. A few of the points where this importance is manifested are as follows:

Built-up bites offer the only *certain* means of getting correct relations of the jaws; that is, "getting a correct bite."

The correct relations of the jaws, vertically, can be gotten only by means of bites, with which the separation of the jaws can be so controlled that the lips lie properly. Built-up bites are only one of which this is true.

Built-up bites permit an accuracy in the selection of teeth which is otherwise impossible. While teeth may be fairly well selected by guessing or by trying them on the model, exactness is almost impossible by either method. The only way to select teeth quickly and accurately is by means of dimensions registered on built-up bites. This will be explained later.

Built-up bites save more time in setting up teeth than is required to make the bites. It is much easier and quicker to set uppers properly by means of a lower bite that regulates the position of every

upper tooth than to remove "mush bites," makes wax base plates and then set the teeth purely by judgment, or by a measure, which locates merely the cutting edges of the centrals. By cutting in the upper bite places to set the teeth, the locations of the cutting edges and the occlusal surfaces are quickly obtained, and the positions and slopes of the labial and buccal surfaces are correctly established.

In waxing up much time is saved and a good deal of uncertainty avoided. It is not easy to tell just how full to make the gums when "a mush bite" is used, but a built-up bite has already done that. It was correctly built out in the month; therefore, it is necessary only to set the teeth into the bite and wax about them.

Changes of teeth in the mouth are fewer and simpler following the use of built-up bites. Most careful plate workers prefer to try the waxed plate in the mouth to verify the articulation. Following the use of other forms of bites the changes are often extensive. The upper teeth may come too low in relation to the lip; or they may not come low enough. They may project too far or not far enough. Any changes in the anteriors are likely to involve changes in the posteriors, possibly to the extent of resetting.

Built-up bites, when well made, determine in advance the length and projection of the anteriors and the position of the posteriors. Changes in the mouth are not often necessary, or if required are but slight. Teeth adapted by such bites require but little grinding to give both sets proper articulation.

Apparently the careful making of built-up bites is a waste of time; but for the dentist who wishes to make plates which appear well and masticate successfully, built-up bites, slow as they seem at first, are really speed-makers. The old adage, "Make haste slowly," applies here with peculiar force. A little slow haste in the beginning of plate making will quicken our steps surprisingly before the plates are finished.

The reason built-up bites *seem* to take more time is that they accomplish in the bite, and at once, several things which other forms of bite scatter through the history of the plate. We must make the wax base plate. We must determine how low the cutting edges of the upper centrals shall come. We must decide what forward slope to give the anteriors and what buccal slope to give the posteriors. If we care about expression we must give the gums the fullness re-

quired for that case. With the "mush bite" we put off settling these questions till we are in the laboratory with no exact data at hand, and we can give guesswork a free rein. Guesswork takes more time in the end than the built-up bites require. Careful examination shows that the mush bite costs more time than it saves.

Later on these articles will deal with the subject of Anatomical Articulation. Built-up bites are absolutely essential to this most desirable form of plate work.

HOW TO MAKE CORRECT BITES.

The making of the first few bites will probably require a little patience, but the technique is really simple, and once it is acquired bites may be made in a few minutes.

Bites are made by the use of base-plate wax or base-plate composition, as the dentist may choose. A plate of the desired material is made over each model precisely as when starting to set up the teeth.

A bite may be made of modeling compound by placing the soft compound over the ridge in the form of a roll reaching from one tuberosity to the other. Work the lingual side of the roll down over the palate from each ridge till it meets the center, forming a plate. Work labial and buccal sides of the roll up to the outside of the ridge. Of course the bulk of the compound should be left on the ridge to form the bite.

Everything considered, base-plate composition is by far the best material for making bites. It must be softened with dry heat and adapted before it cools. With a hot instrument the edges can be quite easily trimmed to proper height all around the margin and to proper length at the back. A roll of wax, trimmed to present a flat occlusal surface, is now placed along the ridge and fastened to the plate with heat. The roll should be somewhat deeper vertically than the length of the teeth to allow for trimming.

The labial-buccal surface of the upper bite is made approximately smooth. It is then ready to try in the mouth where the balance of the work is done.

The upper bite is put in first; the lower is left out until the upper has been properly trimmed. With the upper bite in the mouth we determine first whether the labial surface has the proper prominence to restore correct expression of the lip. If the wax is not full enough, build it out until the lip appears about right. If it is too

prominent, trim until the lip appears natural. This trimming need not be done with great care at present, but may be left until last. Build or trim the buccal surfaces of the wax ridge until the cheeks have approximately the proper fulness.

MARKING THE UPPER BITE.

Mark the median line, and if there is difficulty in determining this, lay a straight edge from the center of the chin either to the center of the nose or the center of the forehead. Mark the median line where the straightedge crosses the bite.

As the lips lie touching in repose, place an instrument between them and make a horizontal mark on the bite across the median line. This is known as the rest-line. Take the bite from the mouth, measure one and one-half millimeters, equivalent to one-sixteenth of an inch, below the rest-line and trim the upper bite occlusally to this point.

The degree of curve in the buccal section is difficult to determine save by means which cannot be treated of in thihs article. For most cases the line of curvature should be nearly flat through the width of the bicuspids and should then curve slightly upward through the molar region.*

TRIMMING THE LOWER BITE.

When the upper bite has been trimmed as above, place the lower bite in the mouth and shorten it by trimming the occlusal surface until the lips touch lightly in repose and it lies in contact with the occlusal surface of the upper bite throughout. That means that the patient need not exert muscular effort to bring the lips together; nor do the jaws come so close that the lips are unduly turned outward at the edges.

Care should be exercised to make sure that the lower bite is nowhere raised from the lower ridge by the pressure of the upper bite. This is most apt to occur when the lower bite is too low in some portion. The pressure of the upper bite then raises the lower bite until the occlusal surfaces lie in contact and the bites appear correct.

Sush raising of the lower bite can be guarded against by draw-

*Dr. G. H. Wilson, Cleveland, sets all teeth except the second molars on a plane. He then elevates the second molars in both plates till three-point contact is secured. Dr. J. H. Prothero determines the condyle path for each case, and gives both plates that degree of compensating curve which keeps the posterior of one side always in contact.

ing back the lips, thrusting an instrument between the occlusal surfaces of the bites in different regions and trying to separate them while the bites are in contact. If the lower bite can be pressed down without making undue pressure on the lower ridge, its occlusal surface at that point needs building until the bite can no longer be moved.

GETTING THE RIGHT RELATIONS OF THE JAWS.

Getting the patient to bite the jaws together in right relations is much easier with correct bites than with any other.

Nothing should be said to the patient as to the importance of biting naturally or correctly, because the efforts of the patient to assist prove real hindrances. If the upper bite has been adapted to the upper model with care, it will have sufficient suction to keep it up during bite making. This is particularly true if base-plate composition is used, since this will permit fine suction and will give the bite great stability.

The trimming which both bites require will necessitate the patient opening and closing the mouth a number of times; the more times the better, because with repeated closing the apprehension and strange feeling give way to a sense of familiarity. By the time the dentist is ready to establish the relations of the jaws the patient will be biting quite uniformly. This will be the easier of attainment if, during the time of trimming either bite, the other one be left in the mouth.

When the bites are properly trimmed and both are in place, have the patient open and close the mouth a number of times and observe whether the jaws close in the same position each time. Keep the patient at it until the jaws close as desired, making a little backward pressure on the point of chin if necessary. The patient will soon come to a natural and correct articulation.

One of the best guides as to whether the jaws are biting in proper relations is obtained by observing closely the movements of the condyle during the opening and closing of the jaws. With a little practice one can readily determine when the condyle is in approximately the correct position. When the jaws are closed on bites which separate them properly, the head of the condyle will usually be found about twelve millimeters forward of the external opening

of the auditory canal and nearly on a level with it. Any protrusion of the lower jaw will move the condyle forward.

When the labial surfaces of the bites have been finally trimmed to give the lip the proper expression, the bites may be fastened together by means of heat, or with staples, or their relations may be indicated by vertical marks across both bites. The bites are now ready for the selection of teeth and for mounting the models on the articulator. —*Dental Digest.*

PRACTICAL POINTS IN DENTISTRY.

BY S. D. RUGGLES, D. D. S., PORTSMOUTH, OHIO.

After giving the college full credit for its share in the preparation of men for their life work, there still remains one obstacle which we must all encounter, viz.: the consciousness of being new and untried. This is perhaps the most trying ordeal the young practitioner has to deal with, and to him especially is this paper written. Following a schedule mapped out by a faculty is an easy task compared to making and executing one of your own, which involves business and professional principles entirely foreign to your previous experience. Fortunate indeed is he who casts his lot with an old practitioner, for many a pitfall is avoided when a little good counsel is available. The man who is ultimately successful by virtue of his painstaking and thorough methods often suffers more at first from lack of confidence than the less skillful, for he realizes that experience will be his best teacher. Under such circumstances the value of association is obvious.

One safe way to avoid mistakes is not to attempt the impossible. College experiments may often prove your undoing; choose rather to make a good impression by executing a simple operation well. The making of a reputation requires time, even in this twentieth century.

I once heard a very prominent merchant say: "Clean linen and well-brushed clothes are a man's best assets for a good impression." This century finds the public well versed in hygiene, and it behooves one to never lose sight of this fact. Soiled linen and dust-covered furniture are not fit testimonials, even for the man of known ability. Above all else, be cleanly and neat, for the majority of patients are

ladies, and these things are noticed. Have your operating room and chair appear for each patient just as though he was the first to occupy it that day. All instruments should have a place, and let that place be under cover. A word about sterilization sometime during the sitting will not be amiss. Better still, should you not have an office girl, gather up the instruments while the patient is rinsing the mouth preparatory to leaving the chair. It will be noticed.

Did it ever occur to you that the dentist's manner and speech are almost as important factors in practice as the ability to read character? The family physician often benefits his patient more with a cheerful greeting than with his prescription, and what you say to your patient has its effect. Not long ago I was surprised by the mother of a first-year high-school boy when she told me of a conversation I had with her son many months before. Confine your remarks to things of interest and within the comprehension of your listener. Some patients care for very few remarks, and a close observer will notice this. The custom of a warning when pain is to be inflicted is usually very welcome, but some are willing to omit even this. Let your voice be low and words carefully chosen, and above all else, refrain from references to your own accomplishments. It is right and proper to talk shop in your own office, but never outside of it.

Proceed with the work systematically, recording each item in a book or on a card for this purpose. For young patients who are not accompanied by parents, it is good practice to have the mother come to the office and talk matters over in detail. Explain the difficulties of the case and state what, in your opinion will be the best thing to do. Emphasize the fact that fillings are but patchwork, and their permanence depends largely upon the care they receive subsequently. It is often advisable to give some idea of the probable cost. This is wise, for it may prevent a misunderstanding, one of the very important things to avoid. These estimates are written in a space provided on the examination blank. Many points are to be considered in this particular phase of the work, the health, the financial condition, intelligence and appreciative ability of the patient.

When the physical condition is such that the more permanent operations do not seem advisable, do not commit yourself until an investigation is made. The family physician is always glad to advise, and under such circumstances no fault is apt to be found with your

results. It is to be regretted that we have no means of knowing a patient's financial standing. Certain of the more expensive operations are advisable when the cost does not enter into the consideration. In small towns the financial condition of the residents is usually known, and the city practitioner need not be entirely ignorant if he is sufficiently interested. Appointments can frequently be arranged, allowing the necessary time for inquiry, or should it be an emergency call, give such relief as is needed, and then place your next appointment far enough ahead to serve your purpose. It requires very little experience to judge a patient's intelligence. The request for a tomato can on an incisor will soon put you right.

Now and then patients present who might be termed incompatibles, and for these your best efforts will result in failure. The experienced anesthetist knows very well that the success of his anesthetic depends largely upon the frame of mind of his patient. For those who are not in sympathy with your endeavors, who question your sincerity or ability, the sooner they are invited to seek other services the better.

The rapid progress made in dentistry in the past decade has so impressed the laity that sometimes the impossible is expected. For instance, some root canals can not be filled with absolute certainty, and why should we be ashamed to acknowledge it? Cases frequently present that are beyond human power to restore, and why not use common sense and say so? People with reasonable intelligence can be made to understand these things if you will but tell them beforehand, and it is your duty to do it. Physicians usually explain the chances in favor of or against recovery.

The financial side of dentistry is a subject of itself. This I treated in a recent issue of *The Summary*. Suffice it to say, "The laborer is worthy of his hire," and bills should be rendered the first of the month.

This is a busy age. Time is worth more than money if such a thing is possible; therefore the necessity for promptness, both on the part of the patient and dentist. Have your office hours, and see to it that they are observed. It has been my custom for several years with certain patients who are deeply engrossed with business cares to notify them by telephone of the time agreed upon for their next appointment. Sending reminders by mail was a failure, for most of

them were pigeon-holed. This liberty is taken only with those who are in sympathy with the idea and are old patients. An early morning appointment often appeals to a busy man, and this you might easily grant, for I know of no better time to work than early in the morning, when you feel well and have not used up all your energy. Under no circumstances consent to working on Sunday. The patient who is too busy to have his work attended to during the week is either a thoughtless and poor manager or a wilful desecrater of the Sabbath. Half holidays during certain seasons and an annual vacation eliminate this factor entirely if you insist upon it.

In concluding, let me emphasize the necessity for reading good dental journals and publications by our best authors. Make it your business to be a regular attendant upon your dental societies. Patients like to patronize a well-posted, up-to-date man, and you not only rob yourself, but him as well, if you fail in this particular.—*Summary.*

CAST GOLD INLAYS.

BY G. W. R.

Of late years nothing has created such widespread interest among dental practitioners as cast gold inlays.

The introduction of this class of filling has aroused unusual attention both in Europe and America, and operators of the highest repute have been enthusiastic in their praises of its great value in every day practice.

It is not too much to say that cast gold inlays mark a new era in dental operations. Some slight proof of the activity which exists, in regard to cast gold inlays, is furnished by the many papers which have already been written and the numerous demonstrations which have been given on the subject.

It is now possible to fill teeth with cast gold inlays which could not be filled with gold foil, cylinders or pellets, by hand pressure or by malleting-in.

In many respects cast gold inlays are vastly superior to any other filling material, and they possess the following advantages: Solidity, exactitude in the reconstruction of the missing tooth-substance, per-

fect adjustment, accurate articulation, and a saving of time and fatigue to both operator and patient.

No more absolute union between the filling and tooth-substance can be obtained with any material that is placed in a tooth, than can be obtained between the tooth-substance and a cast gold inlay set in position with a thin film of oxyphosphate cement, such as is represented by painting the inside of the cavity with the cement on a camel-hair pencil and also painting the inlay with cement. A cast gold inlay set in this way is hermetically sealed in the cavity, and the cement successfully protects the tooth against thermal changes.

Any filling which is entirely dependent upon pits or undercuts to retain it in position is much more liable to leak than a cast gold inlay which is keyed-in, cemented to place, and thoroughly burnished into close contact with the margins of the cavity.

Again, cast gold inlays made from 22-carat gold are considerably less costly, in the price paid for the gold, than gold fillings made from pure gold foil or from cylinders or pellets, to say nothing of the saving in value of the difference of the operator's time between casting a gold inlay and inserting a gold filling by hand or mallet pressure; and, further, the 22-carat gold inlay is harder as a filling than pure gold, and will consequently better withstand the strain and stress of mastication.

In my opinion there has never been presented to the profession a method of filling more simple, more accurate, more far-reaching, or more definite in its results than the method of filling teeth with cast gold inlays.

To attain perfection in this, as in everything else, some practice is necessary; it would be as unreasonable for any operator to expect to be able to make at once without practice a faultless cast gold inlay and insert it in a cavity, as it would have been for him to have expected to be able to master the first time any existing method of filling teeth with cement, amalgam, gold or porcelain, when he began operative work as a student.

It is of great importance that due regard be paid to the shaping of the cavity for a cast gold inlay. A cavity as shaped for a porcelain inlay is not suited for a cast gold inlay. For a porcelain inlay the cavity should be shaped with parallel walls, so that the inlay when inserted will fit closely to the cavity walls and margins, whereas for a cast gold inlay any fissues in the sides of the cavity

should be so shaped and enlarged that the inlay when inserted will be keyed-in in such a way that adequate protection against the effects of attrition will be secured; moreover, the cavity margins should be slightly beveled, for it is obvious that it is far easier to burnish the gold on to the bevel than it is to burnish it against the margins of a cavity, and, further, the bevel permits of the easy removal of any surplus cement with which the inlay is set: the surplus is usually only a slight film.—*Quarterly Circular.*

ROOT CANAL FILLINGS.

So many different methods of filling canals have been presented to dentists, that no man should be without a method suited to his particular fancy. Each has its supporters, and judging from each one's statement, the method he employs is the best. It should not be forgotten that all of these methods are common property; but one would think when hearing them lauded by their defenders, that they originated with them, and had been worked out by them, to a satisfactory conclusion. In reading of the remarkable results attained by some operators, in filling canals, the idea forces itself upon me that these men must be endowed with some especial genius by which their efforts are rewarded with unalloyed perfection, and the filling of canals no longer contains an element of speculation, but is exact and absolute; consequently no canals need be imperfectly filled except by a novice. I often wonder if, when these dentists operate, the saliva flows, or blood follows the removal of a pulp. I think sometimes the patient's breath refuses to evaporate, so that moisture may not be deposited upon the mouth-mirror even though the rubber dam be not used.

No matter how many times a theory has been proven false, its idolators cling to it, lavish affection upon it and refuse to listen to stories circulated about it. All of which is strong evidence that delusions are sweet and must not be dissolved by iconoclasts.—*W. H. Duddy, in Items.*

CEMENT PREVENTS SHRINKAGE.

Cement is said to prevent the shrinkage of amalgam from the cavity wall, and it lessens or entirely prevents the discoloration resulting from amalgam used without cement lining. Cement also strength-

ens frail walls, and in cases of hypersensitive dentine it can be used where otherwise under cuts, which would mean excruciating pain for the patient, would be necessary. The method will in most cases save time, and by it we get a filling that will not turn dark, like so many of the gold fillings that we see which for a few years were simply beautiful. Then, too, if a filling is chipped off and has remained so for a while it can be patched with the assurance that the defect was only superficial and that the pulp is still sealed over and protected.—*Dr. F. L. Osborn, Brief.*

REMOVING BLOOD FROM THE PULP CANAL.

It is quite important, after removing a pulp by pressure anesthesia, to thoroughly cleanse the canal, and especially to get rid of all the blood, sometimes a difficult matter. For this purpose alcohol may be used, or sterilized water, freshly distilled or boiled water, or peppermint water to which two minims of phenol has been added to the fluid ounce. A little sodium chlorid may be added to advantage. This may be used quite warm either with a syringe or as a spray with compressed air, and with a little patience the blood completely removed. This should be done promptly so as to preserve the natural color of the tooth. As the rubber dam is in position a saliva injector or a well-squeezed-out sponge is needed to take care of the outflow.—*Brief.*

DENTISTRY FOR THE POOR.

A movement should be set on foot for the purpose of securing to the poor in the country districts, township dentists, whose services will be paid for by the township trustees, the same as the township physicians. In the cities, boards of health should appoint district dentists, who may work in fields that are truly ripe for the harvest, and where the reapers are few. The medical profession should co-operate with the dental in teaching the laity the dangers arising from widespread, prolific and virulent mouth infection, for that eminent authority, Dr. Osler, is responsible for the statement that in the whole realm of hygiene, there is not one thing more important to the public than oral hygiene.—*Dr. W. J. Jones, Summary.*

MISCELLANEOUS

DENTIST FOR A WARSHIP.

In a recently built Italian man-of-war there are special arrangements for a dentist.—*Summary.*

EMERGENCY DRESSING.

Sticky wax with cotton wool mixed with it applied as hot as can be borne makes a serviceable emergency dressing to a cut or other wound.—*American Journal of Dental Science.*

GUTTA PERCHA FOR SETTING CROWNS.

Open face crowns should be set with white gutta percha or at least the margins should be smeared with it.—*American Journal Dental Science.*

ISOFORM.

Isoform is to be highly recommended for treatment of destroyed tissue in the month. In connection with paraffin it is a valuable means of filling root canals. For covering amputated pulps it is not indicated, since it does not prevent the pulp-stump from decay, and allows periostitis to set in.—*Cosmos.*

EASILY MADE ROOT-CANAL DRIERS.

This clinic demonstrated a simple method of rolling triangular pieces of bilulous paper in the fingers wetted with gelatin, to make a stiffened paper point for drying root canals.—*Dr. G. H. Butler, Cosmos.*

STOPPING PAIN.

In Chicago, at a recent clinic, Dr. Keefe demonstrated that any pain arising from the fifth nerve could be temporarily stopped by making two or three injections of equal parts of water and alcohol into the nostrils by means of a watch-case atomizer. The pain would disappear in from ten to fifteen seconds.—*Dr. W. E. Tennant, Review.*

REMEDY FOR PUTRESCENCE.

For the putrescent pulp, Buckley's formalin and tricresol, equal parts, is a most efficient remedy. A. W. Harlin claims to obtain equally good results with mono-chloracetic acid, which will at the same time bleach the tooth if discolored.—*Dr. W. E. Tennant, Review.*

INLAY TROUBLE.

The trouble with the inlay is that it compels the sacrifice of a needless amount of tooth structure—that is, when it is a fad of the operator and used where fillings are indicated.—*Dr. C. E. Kells, Register.*

SOLVENT FOR COCAIN.

In pulp anesthesia use a 10 per cent solution of menthol to dissolve your cocain. It is the best solvent I have found out of a dozen or more I have tried.—*Dr. H. E. Latcham, Review.*

DRAINAGE OF ABSCESSES.

In all cases of abscesses in the mucous tissues of the mouth I insist on the use of 95 per cent carbolic acid on the tent. A very small amount retained in the gauge or cotton is sufficient to cauterize the lips of the incision, making the opening freer, promoting the egress of pus and preventing the ingress of new infective material.—*G. V. Black, Northwestern Dental Journal.*

PAINLESS PULP DEVITALIZATION.

After removing the supercial leathery decay from the cavity with a spoon excavator, use arsenical fibre moistened in eugenol, place a cardboard disc over this to prevent the cement from causing pressure on the dressing, mix cement to a creamy consistency, allowing it to drop from spatula and adjusting itself in the cavity. The eugenol is an anodyne, with anesthetic properties, very penetrating, and there is seldom any pain while dressing remains in the tooth.—*Dr. LeGrand M. Cox, Review.*

GOLD INLAYS STAND.

When one says to me, as was said to me today, "I am satisfied that gold inlays will not stand," when I see inlays made with a shell covering of gold, attached by pins to cement underneath that have remained in the cavities for twenty-five or thirty years and compare

them with the stability which we know belongs to the gold-cast inlay, I do not see how anyone can believe otherwise than that they are permanent.—*Dr. J. D. Patterson, Office and Laboratory.*

ROOT FILLING.

Dr. Jenkins said: "After thirty years of successful experience that a tooth brought into a healthy condition, having its root perfectly filled with zinc-oyxchlorid, retains its color and its health and is absolutely destitute of the faintest odor if you cut it open twenty-five years afterwards."—*American Journal of Dental Science.*

IODOFORMOGEN, TO REPLACE IODOFORM.

Iodoformogen is prepared by precipitating a solution of albumin with alcoholic solution of iodoform and heating the precipitate to 148° F. It is a very fine, voluminous, light yellow, nearly odorless powder, non-hygroscopic and non-conglutinating. It is insoluble in water and can be sterilized at 212° F. without decomposition or change. It has all the desirable properties of iodoform without its unpleasant odor, with the further advantage that as its content of iodoform is very slowly given off when the drug comes in contact with the wound-surfaces the action of iodoformogen is more prolonged than that of iodoform itself. It is non-irritating. In dental practice it may be used precisely as is iodoform.—*Dr. J. M. Woodle, Dental Cosmos.*

ROOT CANAL FILLING.

I am indebted to Dr. Inglis for a root canal filling which, while I have not yet employed it in my practice, I think that possibly it comes nearer to being the ideal filling than any yet developed. It consists in adding to a solution of chloro-percha equal parts of paraform, thymol and eucalyptol, and then before using allowing the chloroform to completely evaporate, leaving a mass of semi-solid consistency. This is followed by gutta-percha canal points, and is believed to maintain its antiseptic strength and not to shrink, as is supposed to be the case with chloro-percha after the chloroform evaporates or disappears from the canal.—*Dr. E. B. Lodge, Summary.*

SULPHOCARBOLATE OF ZINC.

My experience with sulphocarbolate of zinc in pyorrhea has demonstrated that there is seldom a return of the pyorrhea, and that

for an ordinary case the number of treatments necessary is small. However, one must keep in mind that treatment depends in the first place upon the removal of the exciting causes, and that the impossibility of doing this renders some cases incurable. Definite treatment, therefore, consists first of surgical interference; secondly, of medical application of remedies that will reduce the tissues to normal conditions. This may be accomplished in most cases by the skillful dental surgeon.—*Dr. W. H. Whitslar, Cosmos.*

IDEAL STYPTIC.

To the uninformed in this respect, if we were to ask the question, "What is the ideal styptic?" the answer "Adrenalin chloride" would undoubtedly result, while were the same question asked of those informed on the subject, the answer would be adrenalin chloride for temporary contraction of the blood vessels, and tannic acid, alum or salts of iron, for a permanent contraction, for the reason that the former simply excites a contraction of the muscle fibre of the circulatory system, which is only temporary, while the latter coagulates the blood and albumen in the tissues to form a permanent contraction.—*Dr. M. L. Ward, Register.*

REPLACING BROKEN TIPS.

For a time I have employed a method for replacing broken tips and corners in devitalized teeth, as follows: The cavity is prepared and a short hole is drilled into the root-canal. A matrix is made, and through the matrix an iridio-platinum post, covered with platinum foil, as above described, is thrust into the root canal and cemented to the matrix with wax. By taking hold of the free end of the post with a pair of foil-carriers the post with the adhering matrix is easily withdrawn from the cavity. This is invested and the porcelain tip is built around the projecting end of the post. When finished the matrix is peeled off, the post withdrawn, etched with hydrofluoric acid and cemented into place.—*Dr. L. M. Homburger, Items.*

PERSONAL AND GENERAL

Fire.—The office of Dr. A. C. Hill in Toledo, Ohio, was damaged to the extent of $200 by fire recently.

Vulcanizer Explodes.—The office of Dr. A. W. Rogers in Newburyport, Mass., was badly wrecked when a vulcanizer exploded recently.

Dentist for the Insane.—A bill has passed the California senate which provides $200 per month for a dentist for the insane hospitals of the state.

Bear-Ryan.—Dr. E. W. Bear, a dentist in St. Louis, Mo., and Mrs. Lucy W. Ryan, a resident of Springfield, Ill., were married April 12 in the latter city.

Dentist Killed.—S. B. Alexander, a dentist at Marianna, Fla., was killed by a deputy sheriff, who claimed the dentist had kissed his wife while treating her.

Dies From Tooth Extraction.—W. F. Lilley, a carpenter in Paris, Ill., bled to death after having a tooth extracted recently. He was afflicted with cancer.

Dentist Missing.—Friends of Dr. Horace Griffin are uneasy over the disappearance of the dentist, who has been missing for some time from his home in Mishawaka, Ind.

Killed by Indian Woman.—William Ader, a dentist in Ardmore, Okla., was shot and killed by a full blooded Chickasaw Indian woman who claimed the act was in self defense.

Bankrupt.—Herman B. Cahen, a dentist in New York City, filed a petition in bankruptcy recently; debts, $68,529.99, of which $52,000 is secured by real estate, and assets, $1,100.

Tongue Cut; Sues.—A dental firm in Chicago is defendant in a suit for damages claimed by a woman patient who alleges an injury to her tongue through the carelessness of the operator.

Sixty-three Years a Dentist.—Dr. R. C. Chapman of Damariscotta, Maine, is 83 years old, and has practiced in the above named town since 1846, and thinks he is the oldest practicing dentist in the world.

New College at Topeka.—A new dental college is to be established in Topeka, the following dentists of that city being the organizers: Drs. R. K. Hutcheson, A. C. Sloan, W. A. McCarter, and J. H. Solecki.

Takes Poison by Mistake.—Dr. W. H. Pitcher, a dentist in Chicago, took a quantity of aconite by mistake for medicine and feeling

the effect of the drug and that he was losing consciousness telephoned to three physicians and the police, who found the dentist unconscious and hurried him to the hospital. His condition is serious.

Meeting Postponed.—The Waterloo District Dental Society meeting which was to have been held in Marshalltown in April has been postponed until fall. Dr. J. H. Hilderbrand of Waterloo is president.

Southern Minnesota Dental Society held its twenty-fourth annual meeting at Mankato, April 12-14, closing with a banquet and dance. The following were elected as officers: President, Dr. C. E. Conley, LeSeur; vice president, Dr. H. C. Beise, Windom; treasurer, Dr. C. P. Peterson, Mankato; secretary, Dr. C. A. Hintz, Springfield.

James Valley Dental Society.—The James Valley Dental Society held a meeting at Aberdeen, S. D., April 13, and elected the following as officers for the ensuing year: President, Dr. C. S. Jones, Huron; vice president, Dr. W. E. Sargent; secretary, Dr. F. E. Clinite, Redfield; treasurer, W. M. Ringsdorph, Huron; librarian, Dr. W. F. R. Wharton, Huron.

Corning Dental Society.—The Corning Dental Society held a meeting at Creston, Iowa, March 9-10, and elected the following officers for the ensuing year: President, Dr. F. P .Wells, Clarinda; vice president, Dr. J. W. Rowell, Leon; secretary, Dr. J. O. Laird, Malvern; treasurer, Dr. G. E. King, Villisca. The next meeting will be held at Villisca, October 12-13.

Dental Surgeons for Navy.—Thirty dental surgeons to be appointed by the president for the navy and marine corps are provided for in a bill recently introduced by Senator Dick of Ohio. Under the terms of the bill they are to have the rank and pay of acting assistant surgeons, and after three years' service, if found competent, are to be eligible for appointments as dental surgeons with the rank of assistant surgeons.

Dr. Thorpe Banqueted.—In honor of Dr. Burton Lee Thorpe, who was elected president of the National Dental Association, a banquet was tendered to him April 6 at Hotel Jefferson by the St. Louis Society of Dental Science. Speeches were made felicitating Dr. Thorpe upon his election and the St. Louis Society, which was honored through the elevation of a member.

Sauk County Society.—The Sauk County, Wis., Dental Society, has organized a number of dentists from various points in the county, which is a part of the state dental society. The following officers were chosen: President, W. F. Doyle, Reedsburg; vice president, G. W. Snyder, Baraboo; secretary, E. L. Ritzenthaler, Reedsburg; treasurer, J. R. Clark, La Valle; librarian, P. P. Kelley, Baraboo.

The Fifth District Dental Society of Michigan held its meeting in Grand Rapids, April 6-7, and elected the following officers: Dr. Harry

D. Watson, Grand Rapids, president; Dr. Perry F. Hines, Lake Odessa, vice president; Dr. Edwin J. Chamberlain, Grand Rapids, secretary and Dr. M. G. Hillman, Greenville, treasurer. The banquet in the evening was the social feature of the occasion with Dr. George Smith of Belding presiding, and Dr. J. P. Buckley of Chicago the principal speaker, his address being upon "Dental Materia Medica and Therapeutics."

Miami Dental Society.—Dr. J. B. Stewart addressed the Miami Dental Society at Dayton, Ohio, April 5, on matters of interest to the members. The final feature of the meeting was the annual election of officers, those chosen being the following: President, Dr. G. A. Billow, Dayton; vice president, Dr. J. W. McCandles, Xenia; recording secretary, J. E. Potts; treasurer, J. B. Stewart, and corresponding secretary, Dr. E. B. Tizzard.

State Board Affairs.—Out of the fifty-six candidates who took the examination in Boston, March 4-6, but nineteen were successful.—Dr. L. L. Eckman of Grand Forks, N. D., has been appointed as member of the South Dakota state board and is the only new member of the board.—Governor Draper's bill was defeated in the Massachusetts legislature; it provided for the consolidation of the boards of dentistry, medicine, pharmacy and veterinary medicine.—Dr. W. M. Sturgiss of Norfolk, Va., has been appointed a member of the state board to succeed Dr. R. S. Walker, who has resigned on account of ill health.—The Clark bill has passed the Illinois senate. It provides for reciprocity with other states.—The Rech bill has become a law in California. It abolishes apprentices and requires a diploma as a requisite to examination. There is no reciprocity provision.

Removals.—Drs. P. B. DeGroff, from Byron, Ill., to Rockford.—W. H. Lawrence, from Bryan, Texas, to Dalhart.—A. L. Haas, from Des Moines, Iowa, to Atlantic.—E. L. Hawes, from Mankato, Minn., to Wahkon, Minn.—A. C. McLaren, from Chicago, to Shoshone, Idaho.—C. H. Sledge, from Bienville Parish, La., to Dodson La.—J. E. Rose, from Vinton, Iowa, to Oregon.—F. A. Hautsch, from Muscatine, Iowa, to Gibbon, Neb.—George Collins, from Waukegan, Ill., to Hammond, Ind.—E. M. Grindle, from Cripple Creek, Colo., to Blue Island, Ill.—J. M. Donahue, from Montello, Wis., to Superior, Wis.—H. W. Field, from Rockland, Maine, to Auburn Maine.—George Hein, from Cayuga, Ill., to Gary, Ind.—George W. Wheeler, from Kansas City, Mo., to Leavenworth, Kan.—S. J. Whitmore, from Chatsworth, Ill., to Piper City, Ill.—M. McCarthy, from Chicago, Ill., to Watertown, S. D.—P. S. Orth, from Monmouth Ill., to San Diego, Cal.—A. R. White, from Ashley, Ohio, to Delaware, Ohio.—Fred L. Sprague, from Brockton, Mass., to Boston.—Ed. Warner, from Portsmouth, Ohio, to United States Navy.—A. C. Peterson, from Peoria, Ill., to Chicago.—M. D. Johnson, from Waterville, Maine, to Livermore Falls.—Paxton, from

Norway, Maine, to London, England.—A. M. Wilkes, from Leroy, Ill., to Rantoul, Ill.

Robberies.—F. M. Carr, Dundee, Ill., loss $50.—H. G. Fitzgerald & Co., Columbus, Ohio, loss $2,700.—G. O. Kerfoot, Batavia, Ill., loss $10. —F. G. Miller, St. Charles, Ill., loss nominal.—At Topeka, Kan., F. DeObert, F. A. Koester, Carpenter, Heer, and Lyon and Heatherly; aggregate loss, $500.—J. L. Wetzel, Springfield, Mo., loss, $20.—A. O. McCutcheon, Springfield, Mo., loss, $10.—L. R. Richardson, Enid, Okla., loss, $55.—A. L. Austin, Shawnee, Okla. loss not given.—E. G. Gsell, Wichita, Kan., loss not given.

NECROLOGICAL.

Dr. J. E. Talty, the youngest dentist in Woburn, Mass., died April 16.

Dr. Washington I. Thayer, an aged dentist who had practiced in Chelsea and Brooklyn, N. Y., died in Williamsburg April 11th. He was 74 years old and was born in the town where he died.

Dr. F. G. McCollum, a well known Cambridge, Mass., dentist, was found dead in the Charles river, death being due to accident. He was 41 years old and was born in Deere Isle, Maine.

Dr. Edwin A. Monroe, a dentist in Saratoga, N. Y., died April 1, at that place. He was 74 years old and had practiced in Saratoga for 28 years.

Dr. Henry Turrell, a dentist in Rutland, N. Y., died March 30. He was 78 years old and had practiced in Rutland for 32 years and in the State for 49 years. He was a member of the Vermont State Dental Society and was its president in 1900.

Dr. John Gray, a dentist who had practiced dentistry in Amador county, Cal., since 1858, is dead at Jackson, Cal., at the age of 84.

Dr. J. J. Condon, who for 25 years had been a dentist in Effingham, Ill., died March 28.

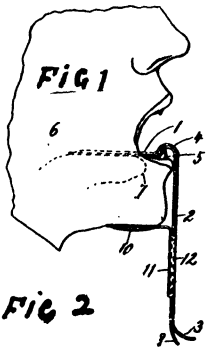
Dr. W. G. Teel, a well known dentist in St. Louis, Mo., died March 22. Dr. Teel was a native of Virginia and a graduate of Washington University.

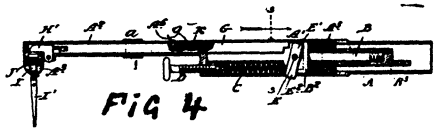
Dr. W. P. Tucker, a dentist in Los Angeles, Cal., died March 11. He was 70 years old and was an ex-captain in the U. S. cavalry.

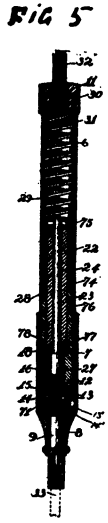
DENTAL PATENTS

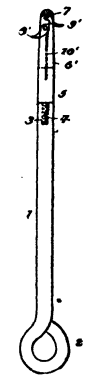
Fig. 1.

914,415. Tongue-Depressor. — Eugene Hubbell, St. Paul, Minn. Filed June 10, 1908. Serial No. 437,720. 1. A tongue depressor comprising a tongue-depressing plate and a handle extending at an angle from one end thereof, a slide on the handle, a chin plate carried by the slide and adapted to take hold under the chin of the patient, and means for holding said slide secured at different places on the handle, said means consisting of a ratchet rack on the slide and a spring-arm on the handle and provided with teeth for engaging the rack.









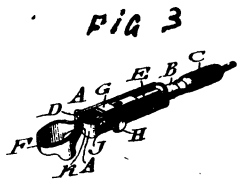


Fig. 2.

916,856. Dental Instrument.—Roy H. Gallagher and Raymond E. Dutcher, Plainview, Neb. Filed July 3, 1908. Serial No. 441,816. 1. A tooth root extractor comprising an operating handle, one or more spring actuated curved barbs pivoted in the end of said handle with their outer

points normally distended, the concave edges of said barbs being turned toward the operating end of the device, thereby maintaining the points in a position practically at right angles to the side walls of the tooth.

Fig. 3.

912,810. Dental Matrix-Clamp.—Sanger S. Carleton, New York, N. Y., assignor to James W. Ivory, Philadelphia, Pa. Filed November 14, 1908. Serial No. 462,572. 1. In a dental matrix clamp, a pair of resilient jaws having recesses in their forward ends in which adjacent portions of said clamp are received and adapted to slidingly move, said jaws being adapted to be expanded and to contract due to the motions of said portions.

Fig. 4.

915,137. Dental Plugger.—William Weichselbaum, Savannah, Ga. Filed September 25, 1906. Serial No. 336,181. 1. In a dental plugger a casing adapted to be held and guided by the operator, having a slender portion adapted to reach into contracted spaces provided with a right angularly disposed head, a tool holder located in such head, a device pivotally seated therein and adapted to contact with the tool holder, a longitudinally reciprocating bar in said slender portion adapted to con longitudinally reciprocating bar in said slender portion adapted to contact with said device, reaching also into a larger portion of the casing, a helical spring in said larger portion extending substantially parallel to said bar, a lever arranged to engage said parts and a rotary shaft carrying a face-cam and means for operatively connecting it to a source of power.

Fig. 5.

916,387. Dental Plugger.—William G. Church, Hartford, Conn., assignor of one-half to William F. Gubitz, Hartford, Conn. Filed April 29, 1907. Serial No. 370,784. 1. In a dental plugger, the combination with a case, of a spindle movable lengthwise within the case, a hammer mounted within the case, a lever of the first class pivotally mounted in the spindle, engaging means between one end of the lever and case for operating the former to cause the other end thereof to engage and move the hammer in the case, means for successively disengaging the lever from the case in a movement in one direction of the latter, and a spring located within the case and thrusting against the hammer to cause the latter to deliver successive blows on the spindle as the lever is successively disengaged from the case.

"THE TRAVELING SALESMAN," at the Illinois theater, has scored an emphatic success, where it is being played nightly, Sundays included. James Forbes, also the author of "The Chorus Lady," has taken for his central character the best known American type today, "the traveling salesman," and has aimed chiefly at a humorous exposition of his characteristics.

If you are a traveling salesman you will enjoy your namesake, if not, you will laugh for two solid hours at solid, unadulterated fun, as you listen to the slangy, snappy story of how the village maiden came into her own through the heroism of the "drummer," who in foiling the villain, restored to the pretty little telegrapher the parental acres and won her heart.

There is a game of Jack Pots in the Elite hotel between five traveling salesmen who are stalled in the jerkwater town over Sunday that adds new glories to the idiom of poker.

The company now at the Illinois is the original one that greatly helped this comedy's successful nine months' run in New York, and comprises Frank J. McIntyre, Elsie Ferguson, William Beach, Sarah McVicker, Arthur Shaw, Percival T. Moore, H. D. Blakemore, Nicholas Burnham, Edward Ellis, Richard Ogden, R. C. Turner and Maude B. Sinclair. Prices, 50c to $1.50.

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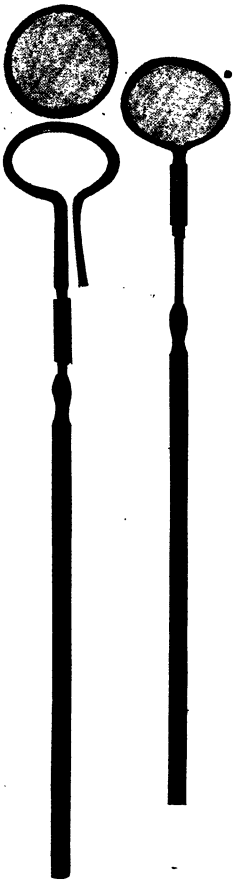
THE SANITA REFLECTOR



The illustration herewith shows fully the working of this mirror. The glass can be instantly removed and the nickel parts sterilized. The glass can be immersed in any antiseptic solution, and the handle and frame can be sterilized by boiling in water.

The OBJECTIONABLE FEATURES of other mirrors of this type have been overcome, from the fact that both sides of the lens are glass. In the Sanita Reflector you get two plane mirrors for the price of one, as both sides of the lens are silvered and when one is scratched or ground, by reversing the glass you have a new mirror.

While the magnifying lens has a glass back only one side can be used, as all magnifying lenses are concave and consequently two cannot be cemented together.

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